

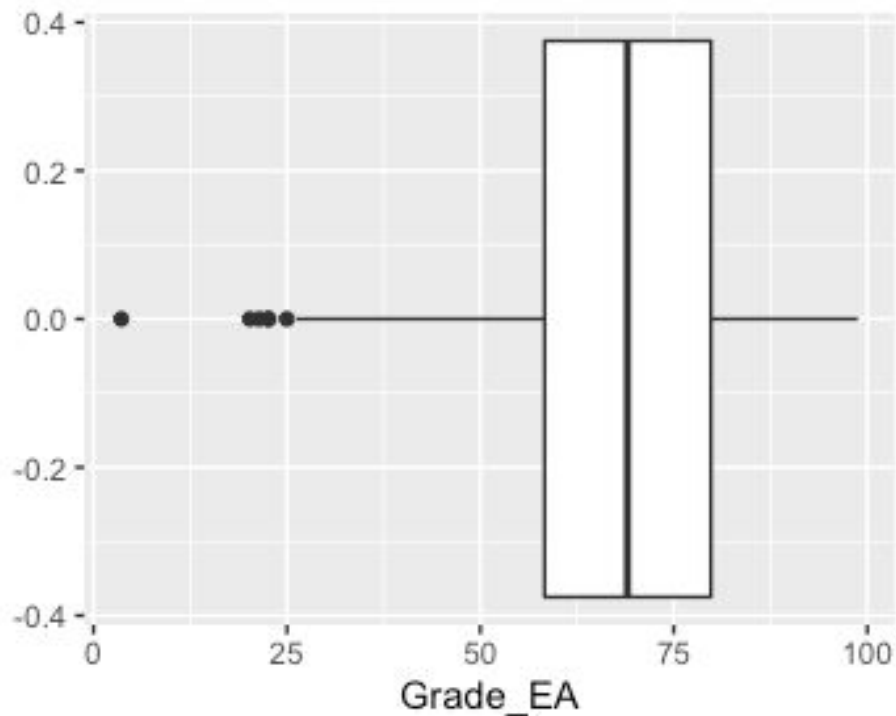
IRT Analysis

ES 350 2018-2019 Term A, B

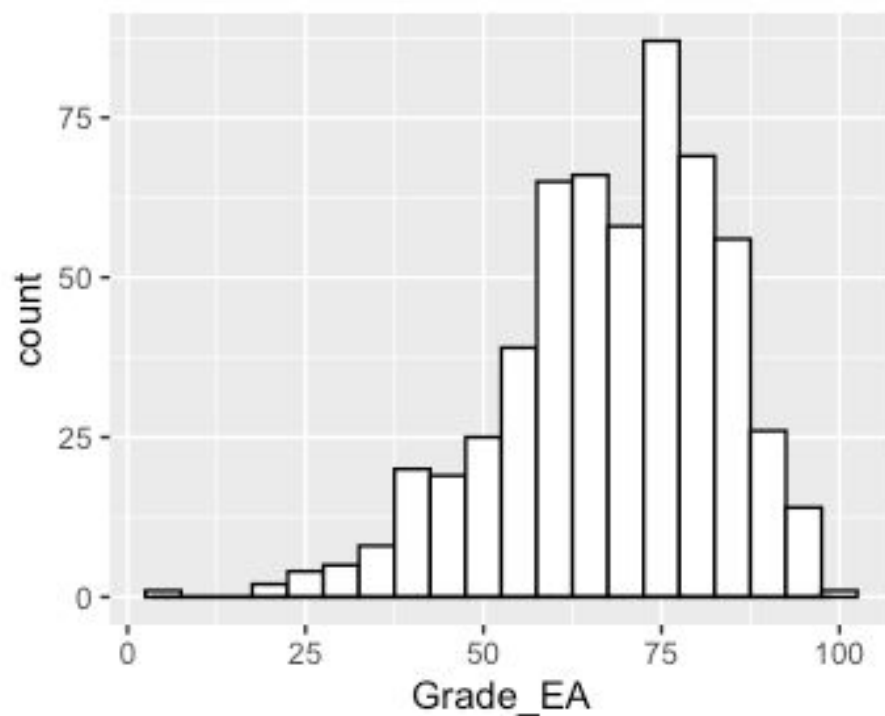
2020 Term A

EDA - score distribution

ES350 2020 Term A Grammar

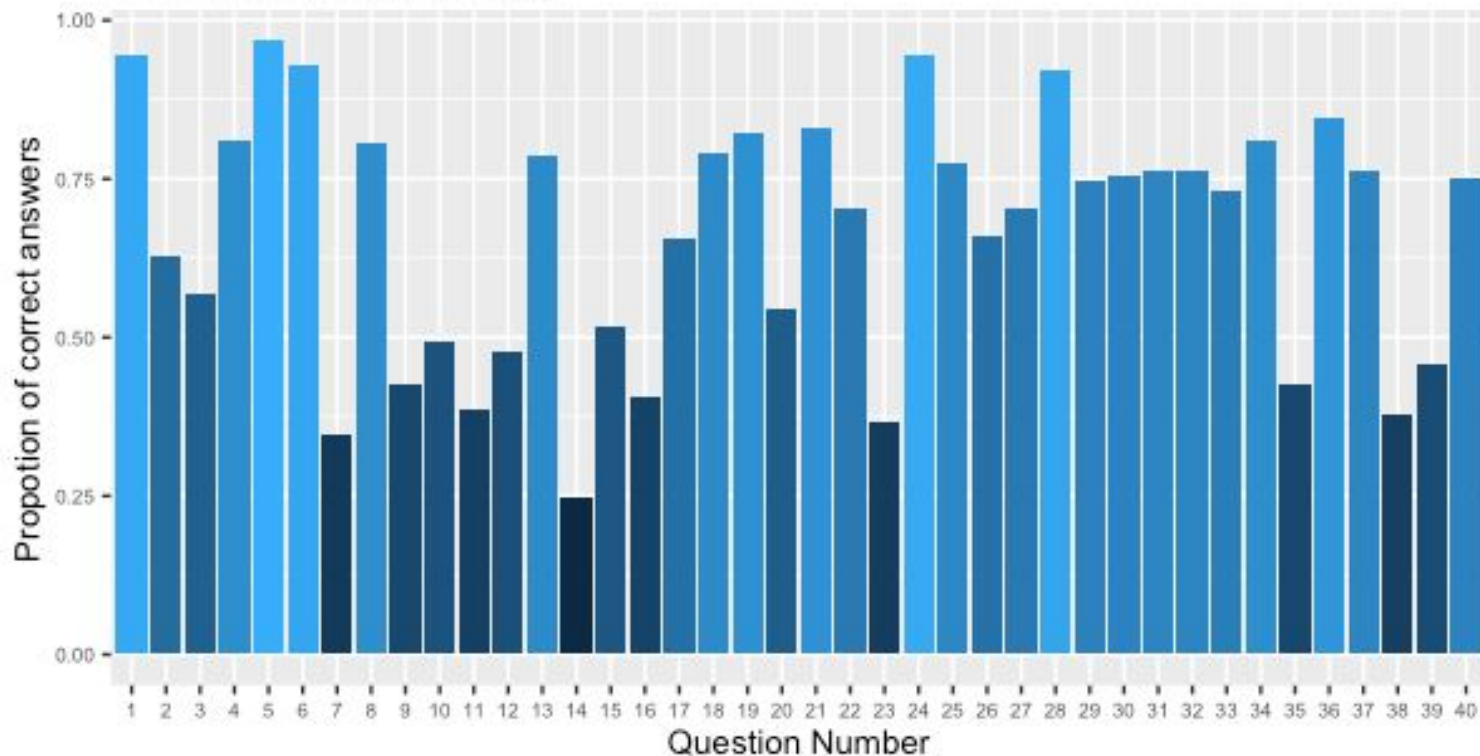


ES350 2020 Term A Grammar



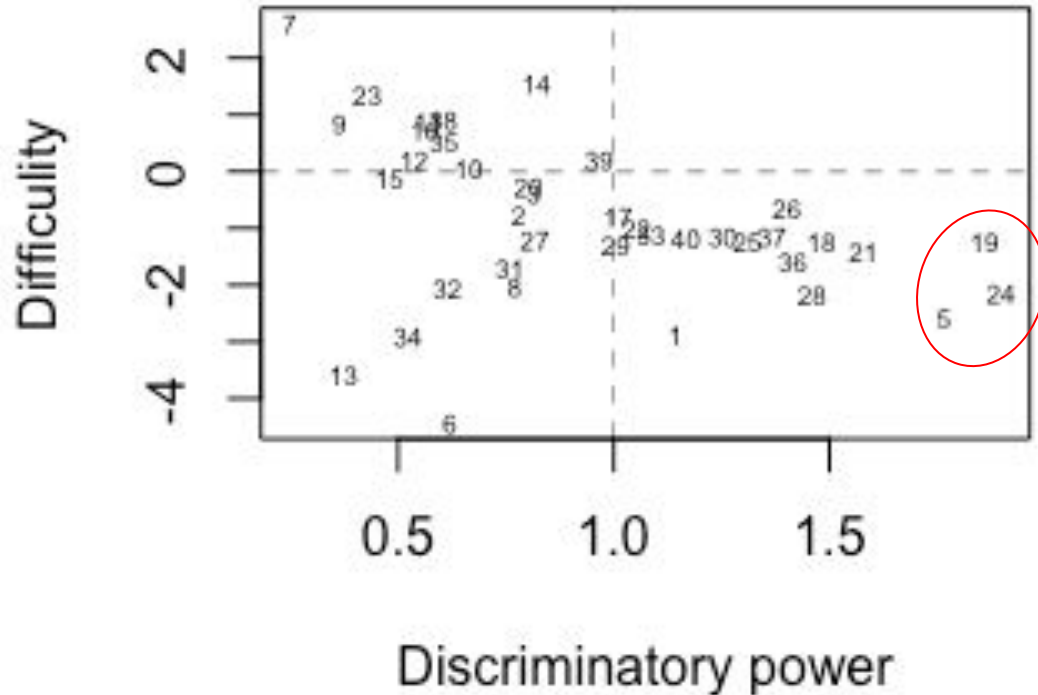
EDA - 正答率

ES350 2020 Term A Grammar



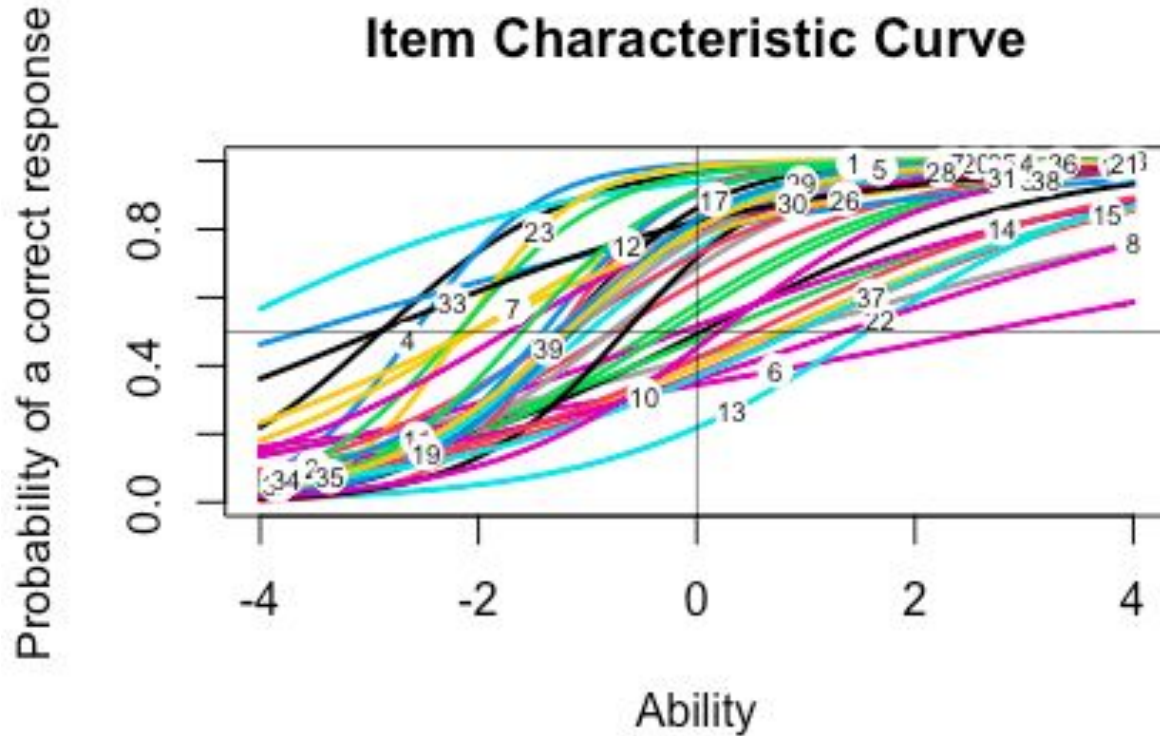
Min: 0.2465
Median: 0.7394
Mean: 0.6664
Max: 0.9681

Discriminatory power - Difficulty plot (outliers removed)

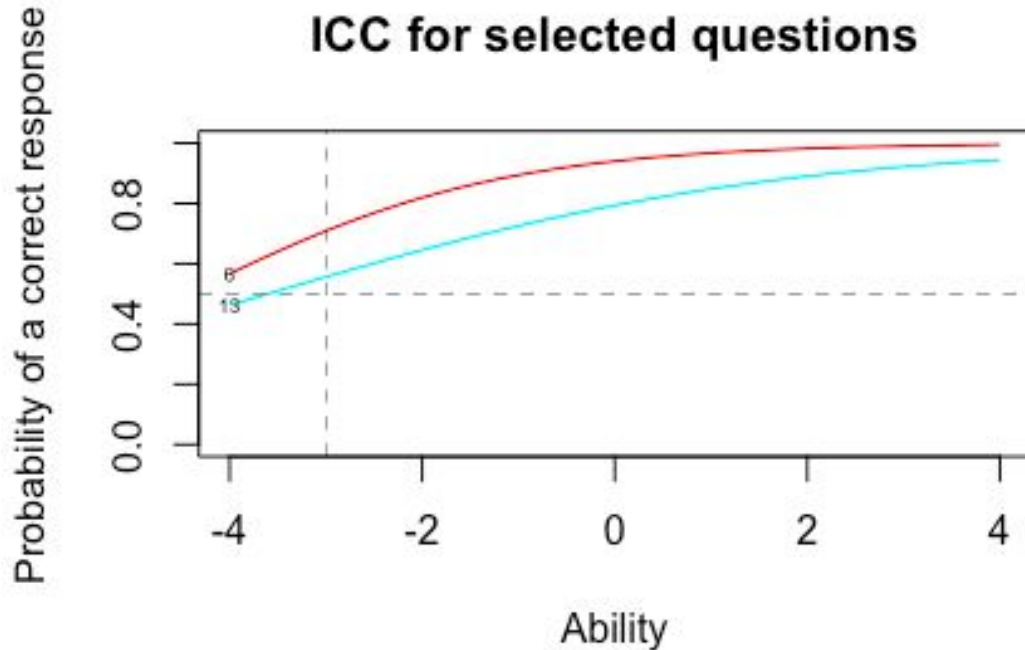


- Most problems have discriminatory power in the range of 0.5-1.5, well distributed
- 5, 19, 24 have relatively strong discriminatory power with a moderate level of difficulty
- Difficulty: majority < 0 with a wide range (between -4 and 2)

Item Characteristic Curve - Overview



Item Characteristic Curve - Selected Questions

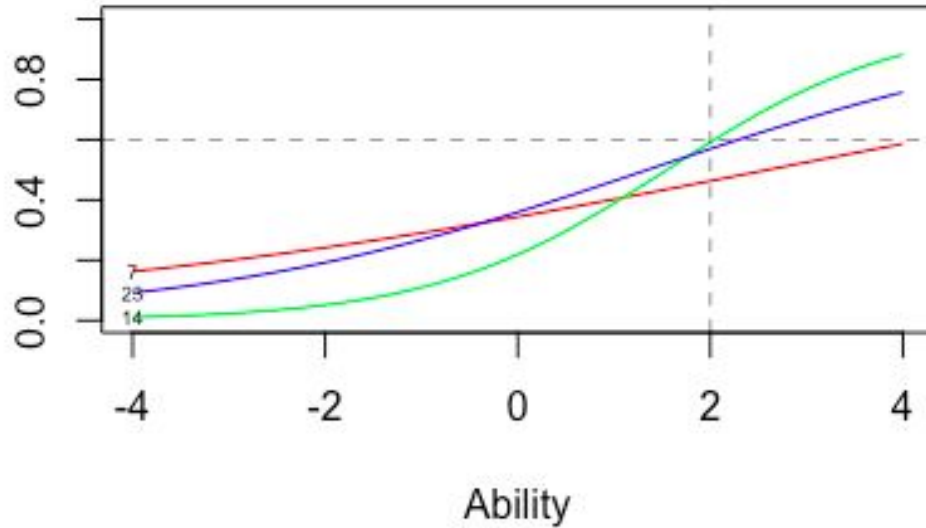


- Question 6, 13
- Select the questions that more than half of the students with ability = -3 got correct
- These questions are “too easy”

Item Characteristic Curve - Selected Questions 2

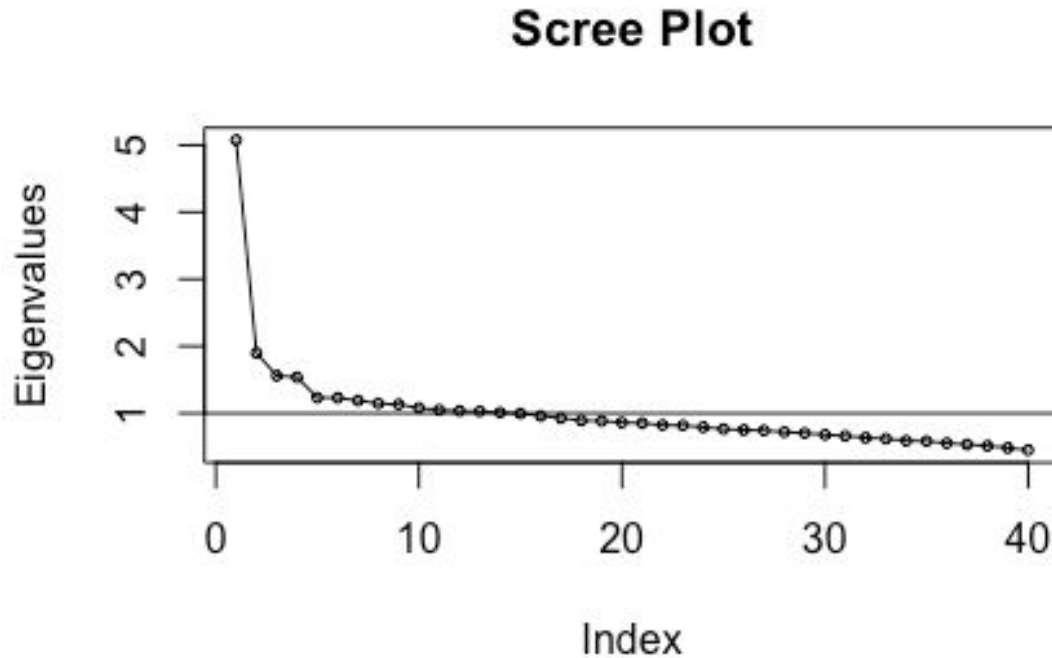
Probability of a correct response

ICC for selected questions 2



- Question 7, 14, 23
- Select the questions that more than 40% of the students with ability = 2 got wrong
- These questions are “too difficult”

Scree Plot

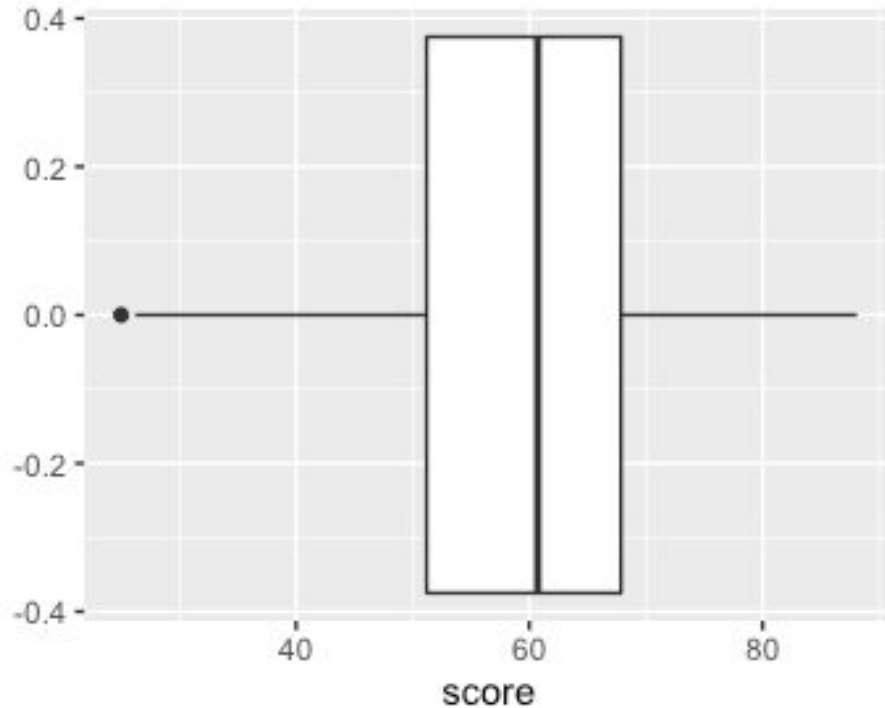


- Since 14 of the items have eigenvalues > 1 , we only need 14 items to verify unidimensionality

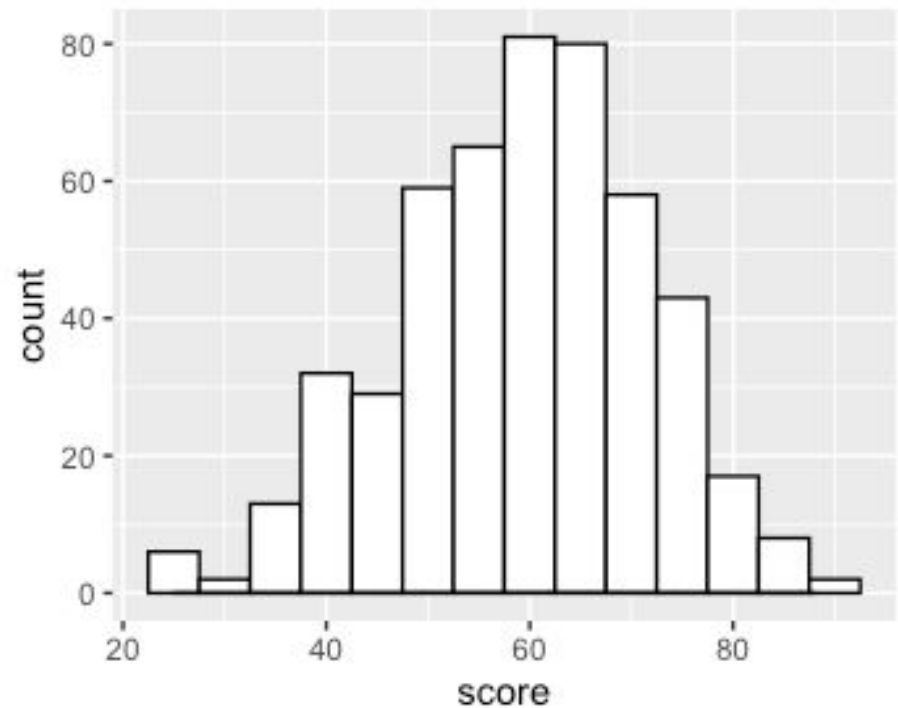
2019 Term A

EDA - score distribution

ES350 2019 Term A Grammar

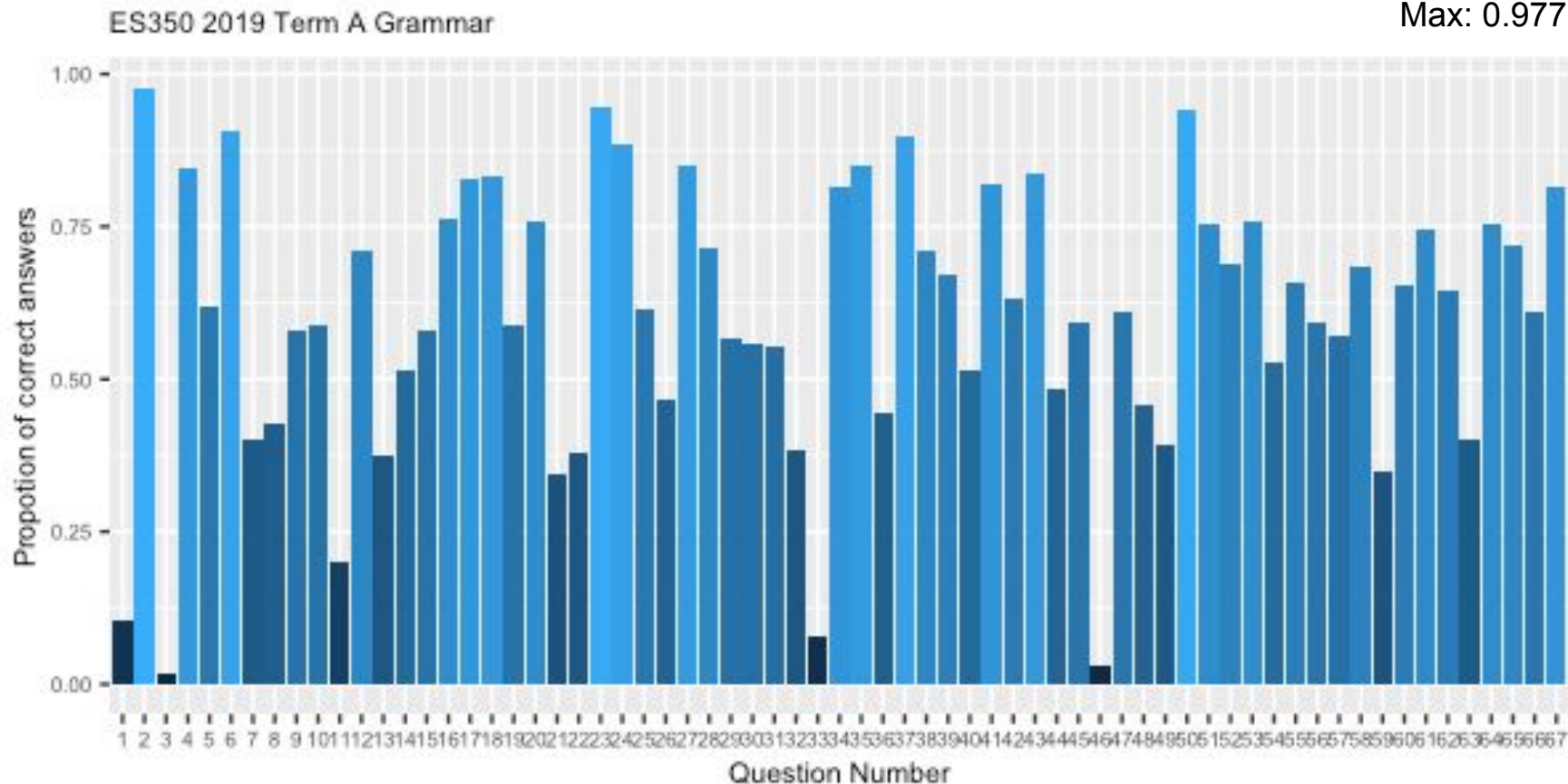


ES350 2019 Term A Grammar

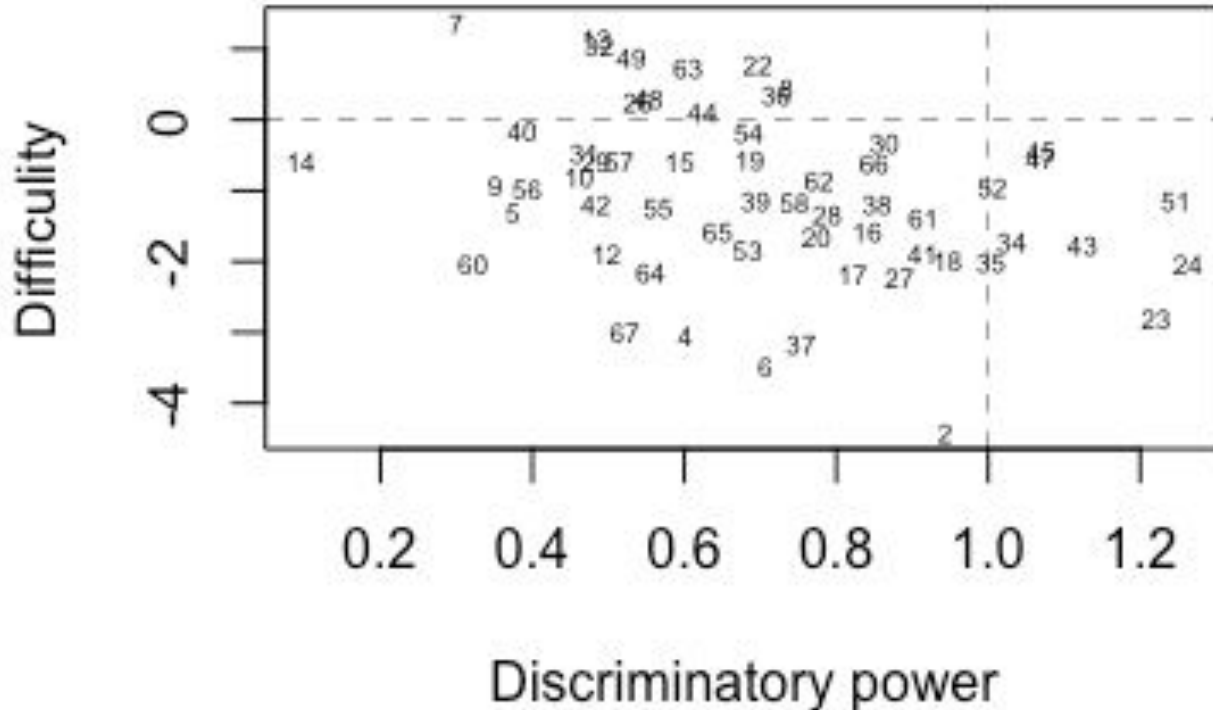


EDA - 正答率

Min: 0.01626
Median: 0.61336
Mean: 0.60582
Max: 0.97764

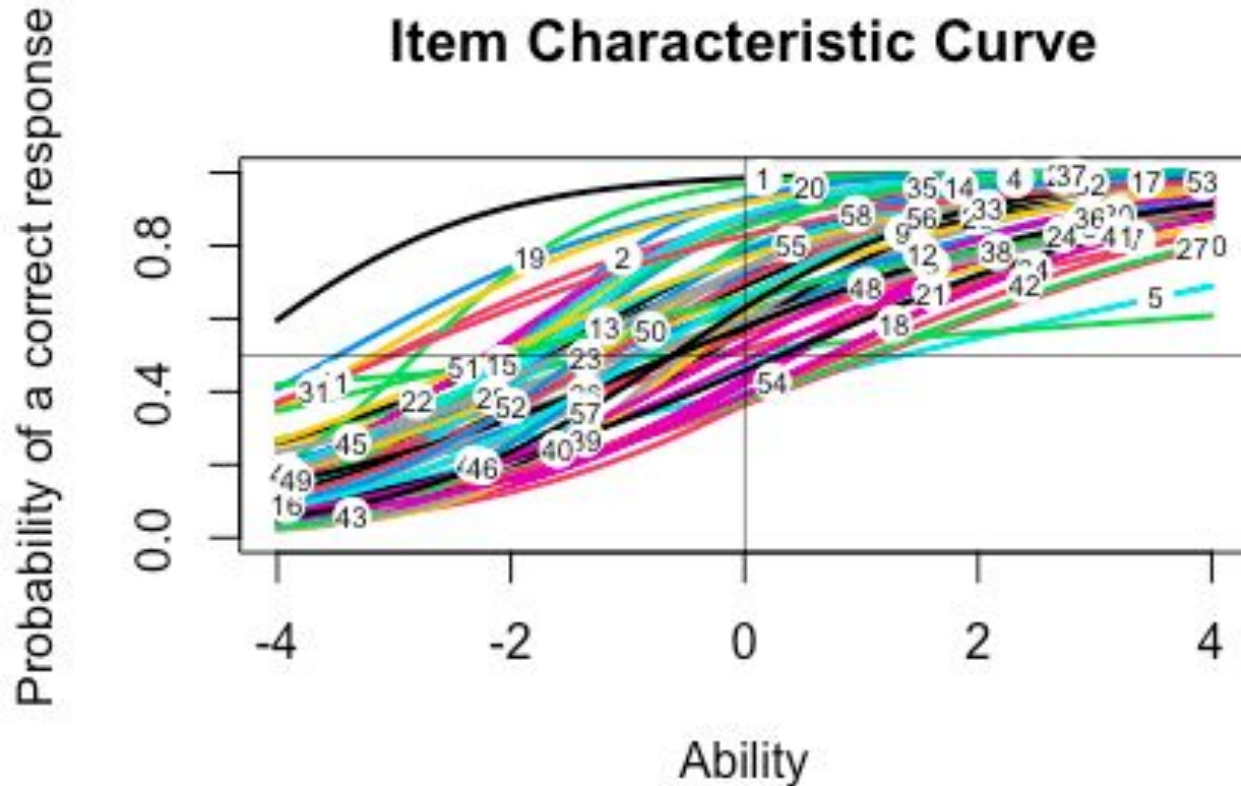


Discriminatory power - Difficulty plot (outliers removed)



- Discriminatory power: majority < 1.0, in range of 0.2-1.2
- Difficulty: majority < 0 with a wide range (-4 - 2)

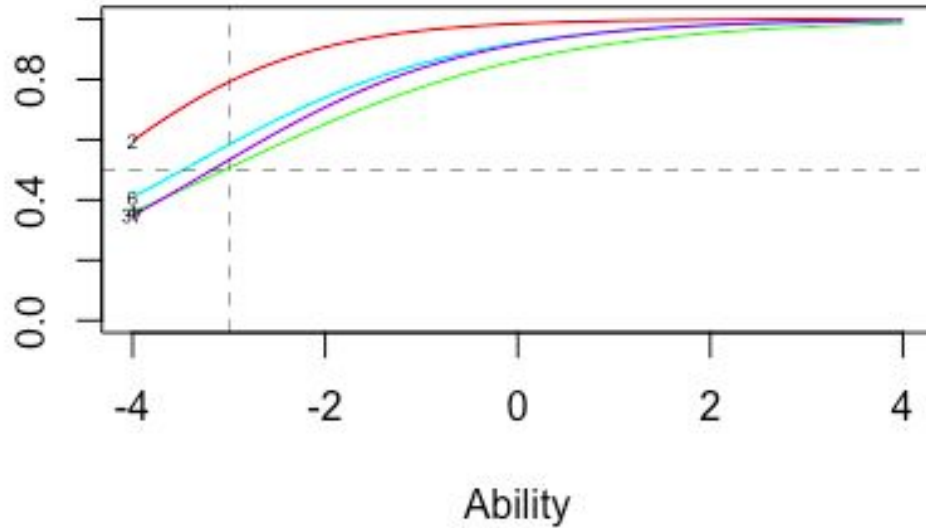
Item Characteristic Curve - Overview



Item Characteristic Curve - Selected Questions

Probability of a correct response

ICC for selected questions

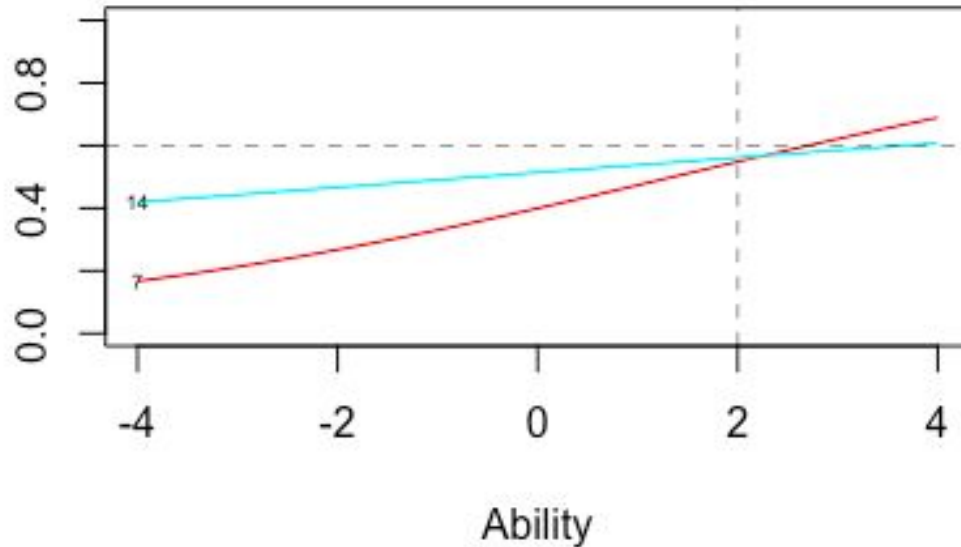


- Question 2, 4, 6, 37
- Select the questions that more than half of the students with ability = -3 got correct
- These questions are “too easy”

Item Characteristic Curve - Selected Questions 2

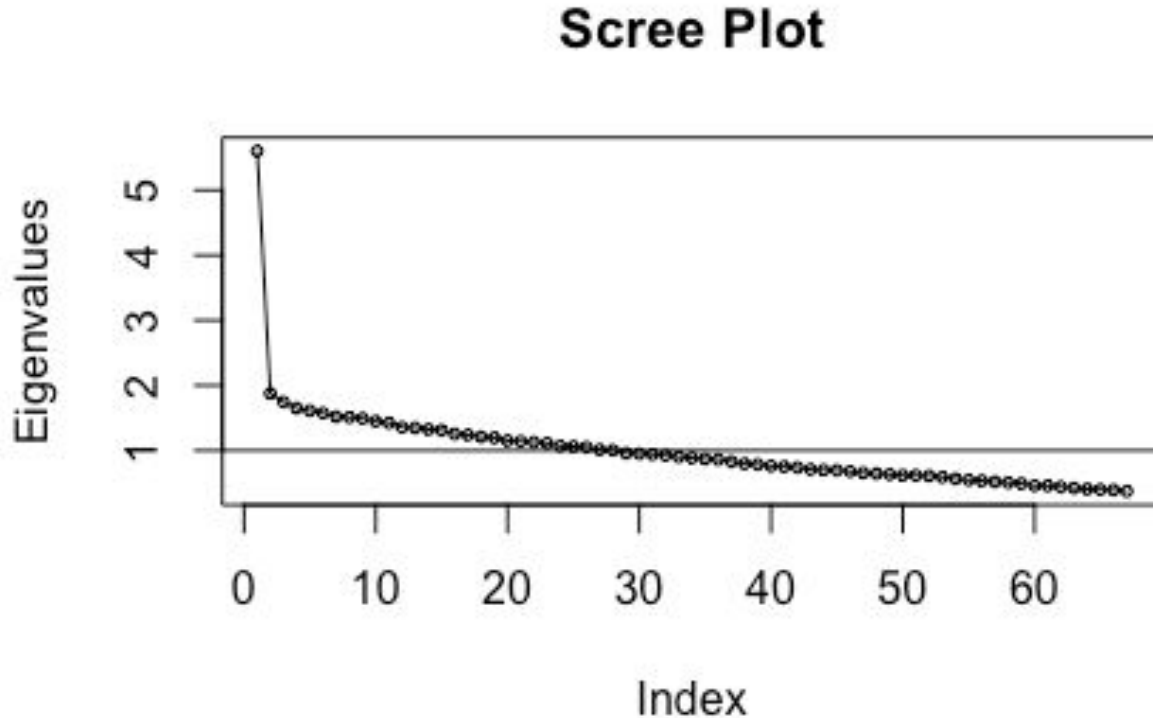
Probability of a correct response

ICC for selected questions 2



- Question 7, 14
- Select the questions that more than 40% of the students with ability = 2 got wrong
- These questions are “too difficult”

Scree Plot

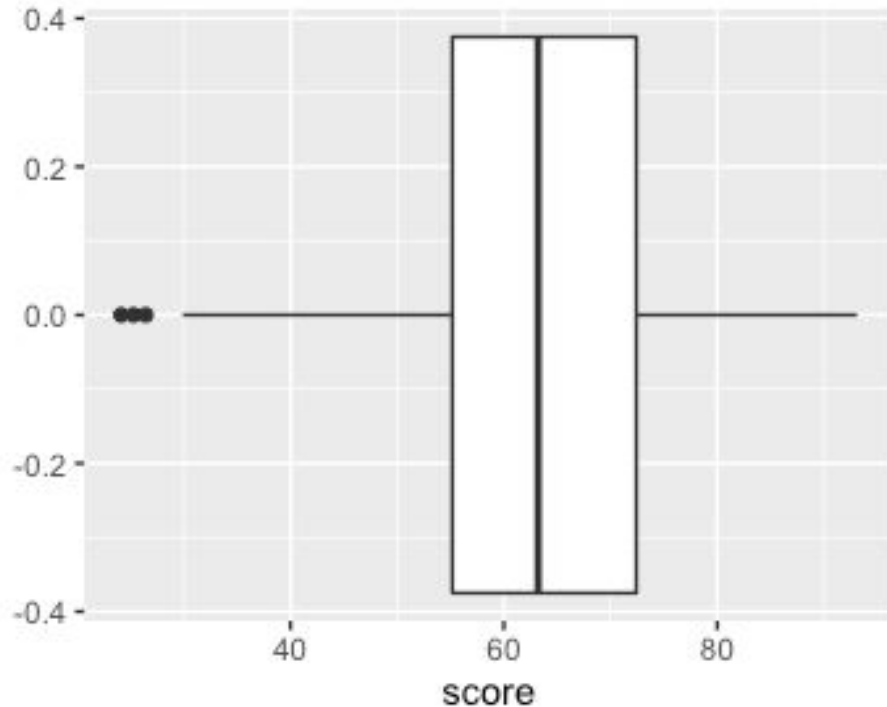


- Since 28 of the items have eigenvalues > 1 , we only need 28 items to verify unidimensionality

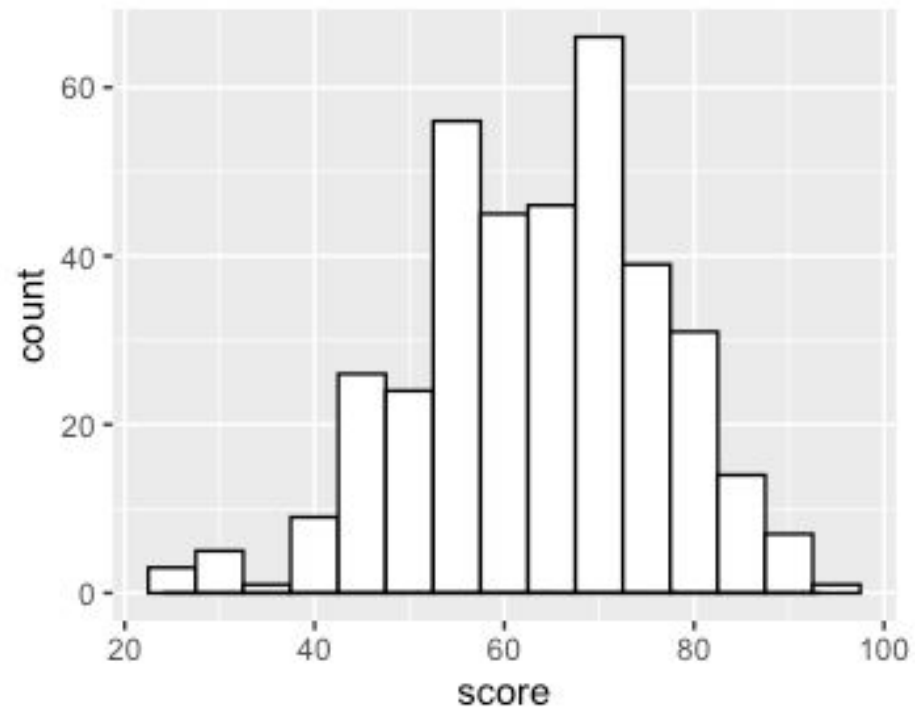
2018 Term A

EDA - score distribution

ES350 2018 Term A Grammar



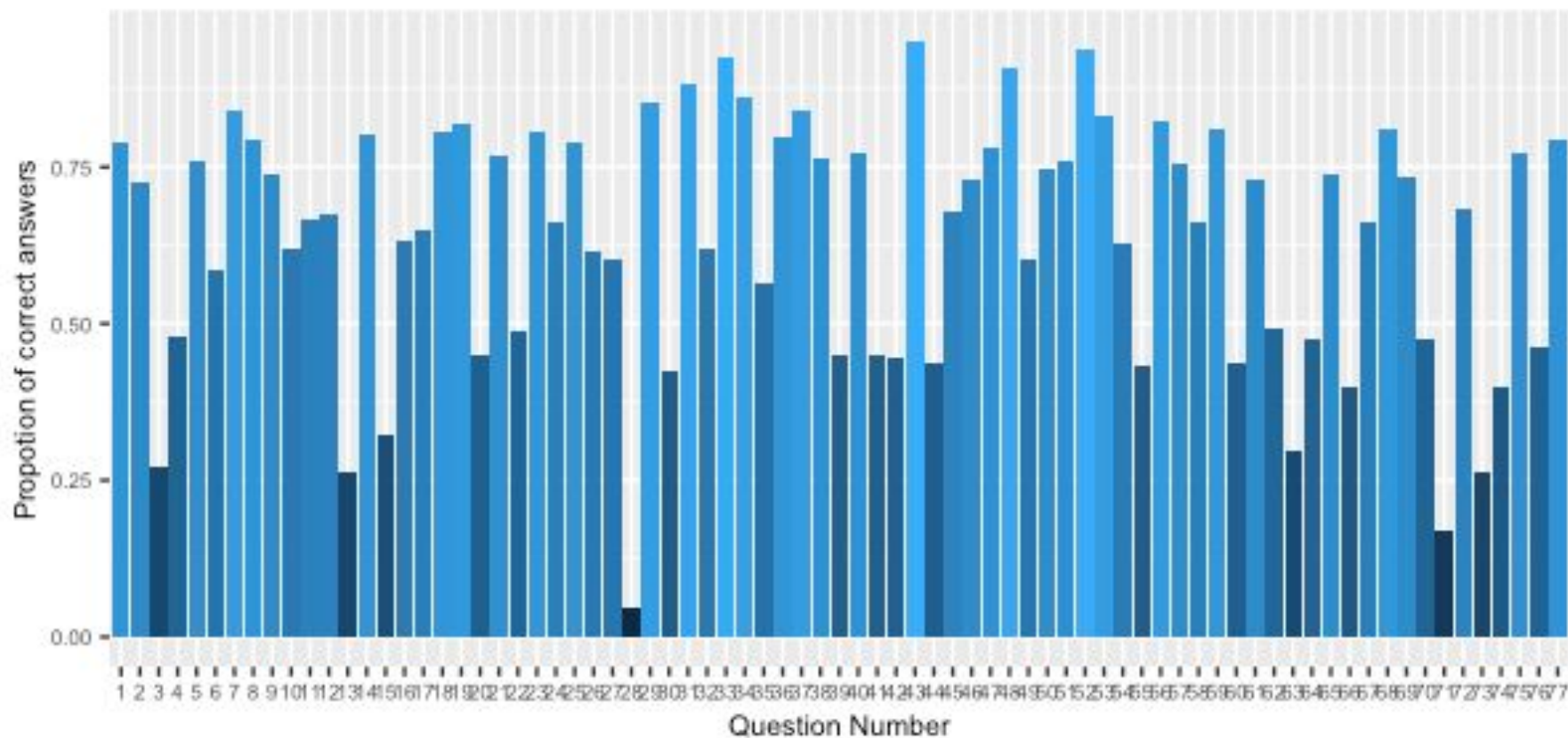
ES350 2018 Term A Grammar



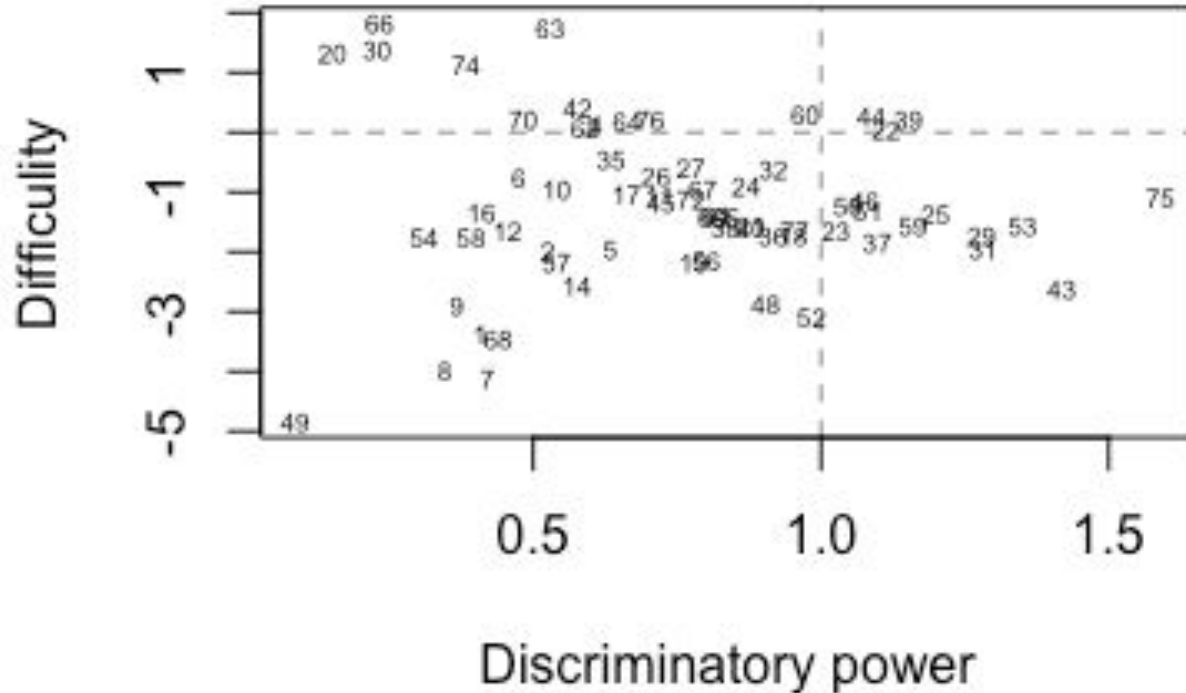
EDA - 正答率

Min: 0.04558
Median: 0.68011
Mean: 0.64128
Max: 0.95174

ES350 2018 Term A Grammar

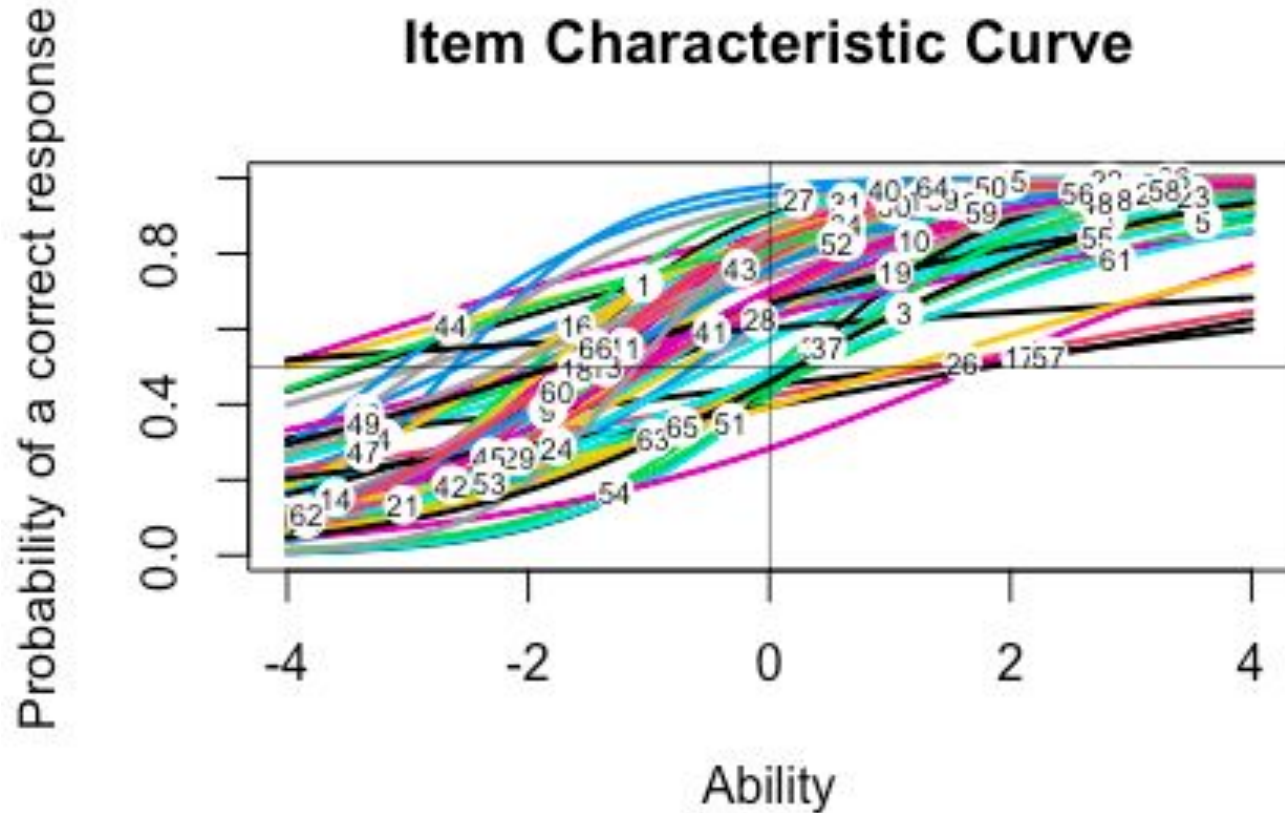


Discriminatory power - Difficulty plot (outliers removed)

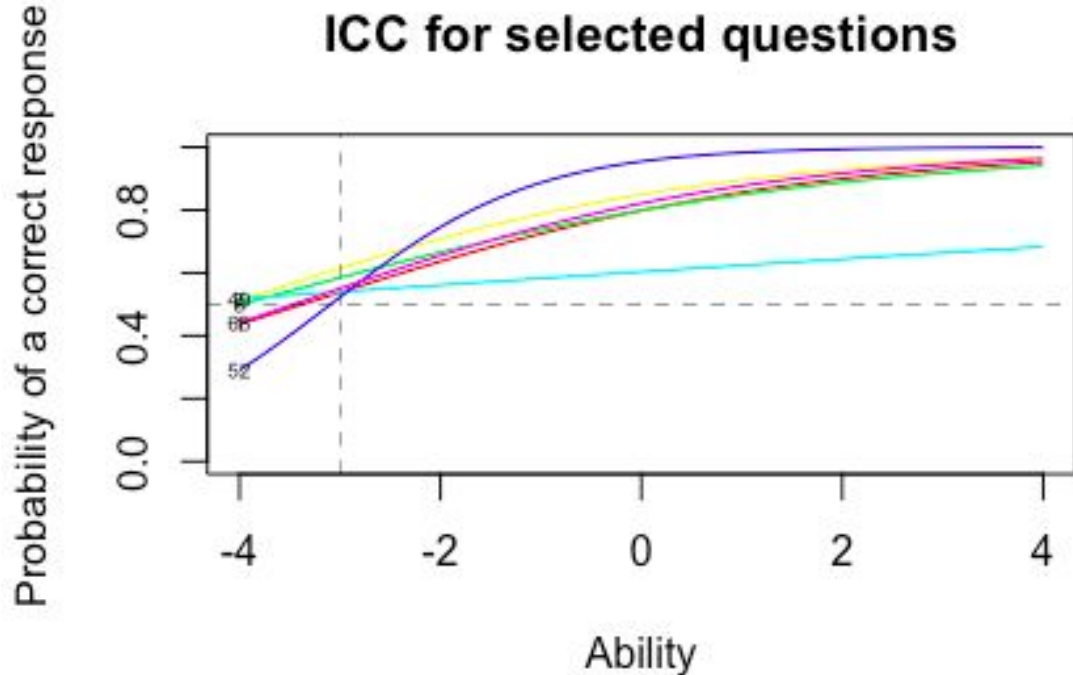


- Discriminatory power: in the range of 0-1.5, clustering around 0.5-1.0
- 75 is a “good” question with a strong discriminatory power and a decent level of difficulty
- Difficulty: majority between -3 and 0, wide range from -5 to 2

Item Characteristic Curve - Overview

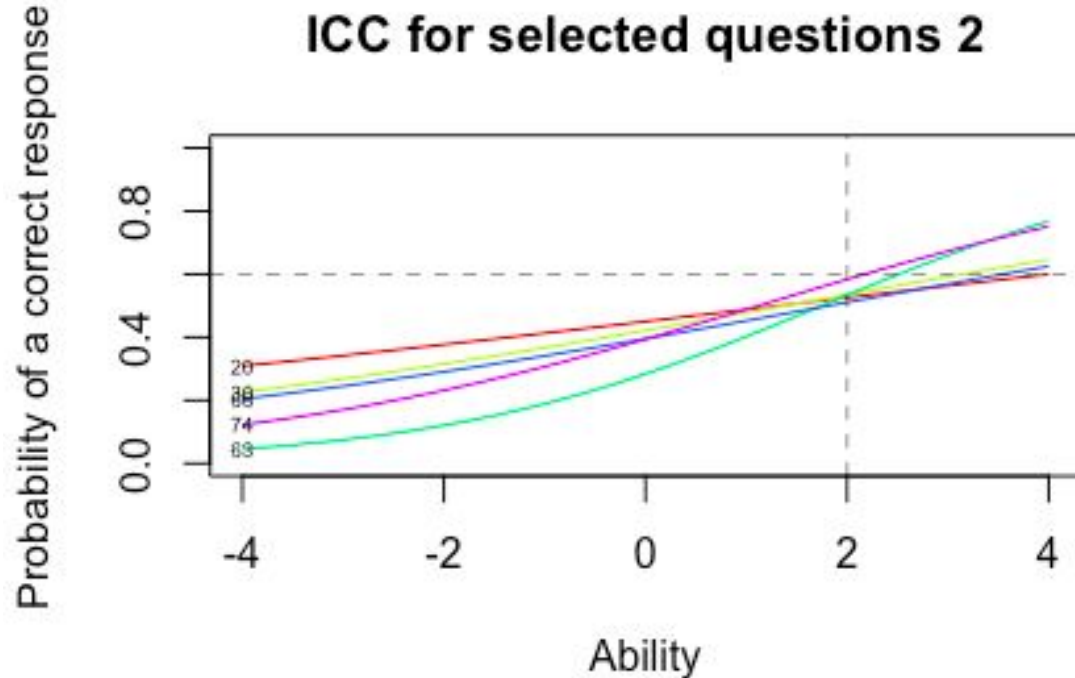


Item Characteristic Curve - Selected Questions



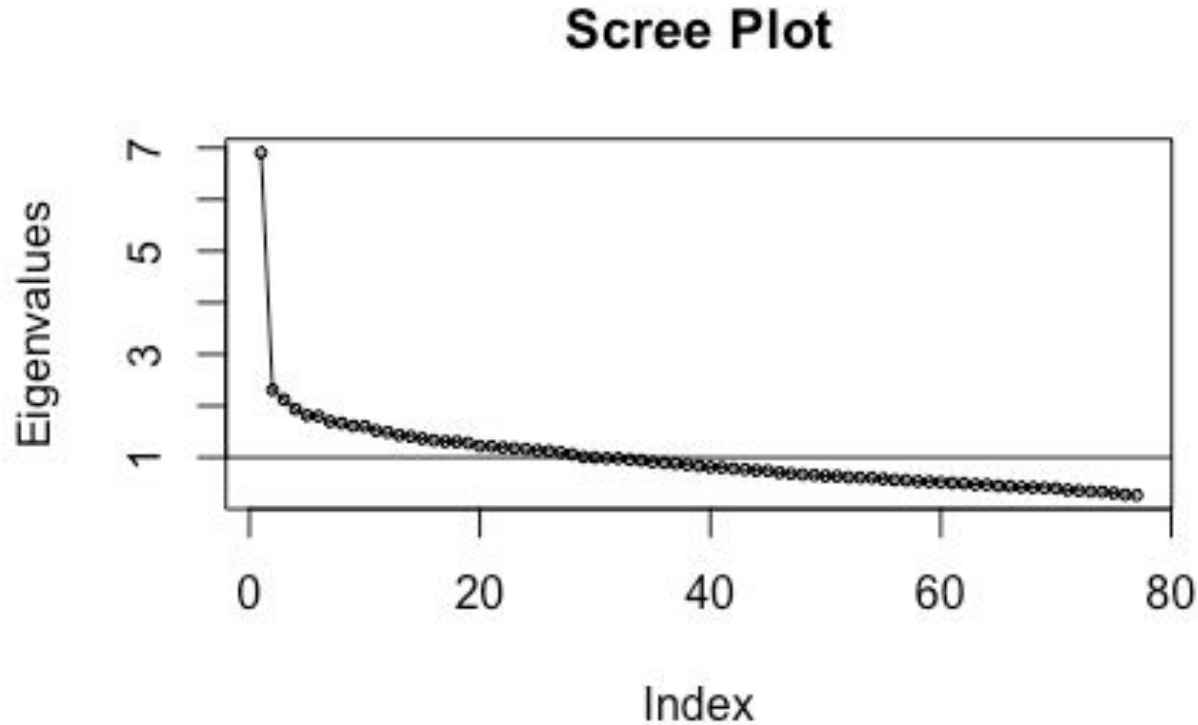
- Question 1, 7, 8, 49, 52, 68
- Select the questions that more than half of the students with ability = -3 got correct
- These questions are “too easy”

Item Characteristic Curve - Selected Questions 2



- Question 20, 30, 63, 66, 74
- Select the questions that more than 40% of the students with ability = 2 got wrong
- These questions are “too difficult”

Scree Plot

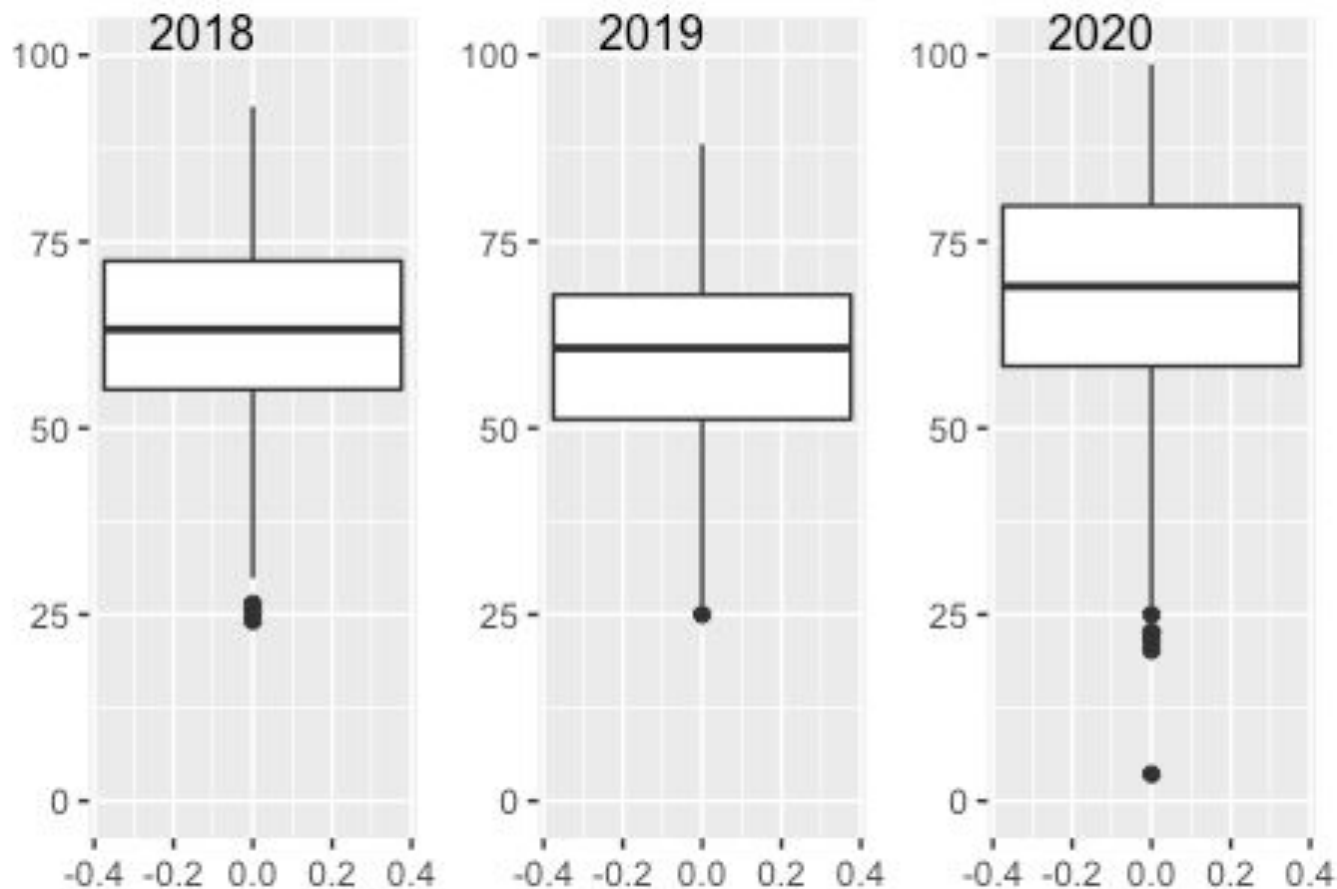


- Since 29 of the items have eigenvalues > 1 , we only need 29 items to verify unidimensionality

Summary

2018-2020 Term A

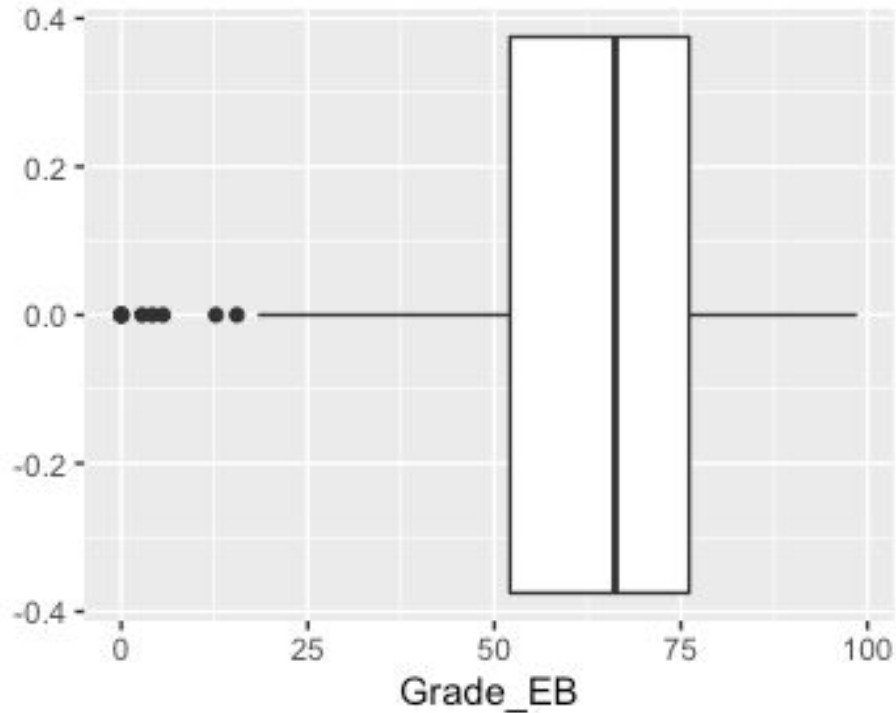
Total score (converted into 0-100 scale)



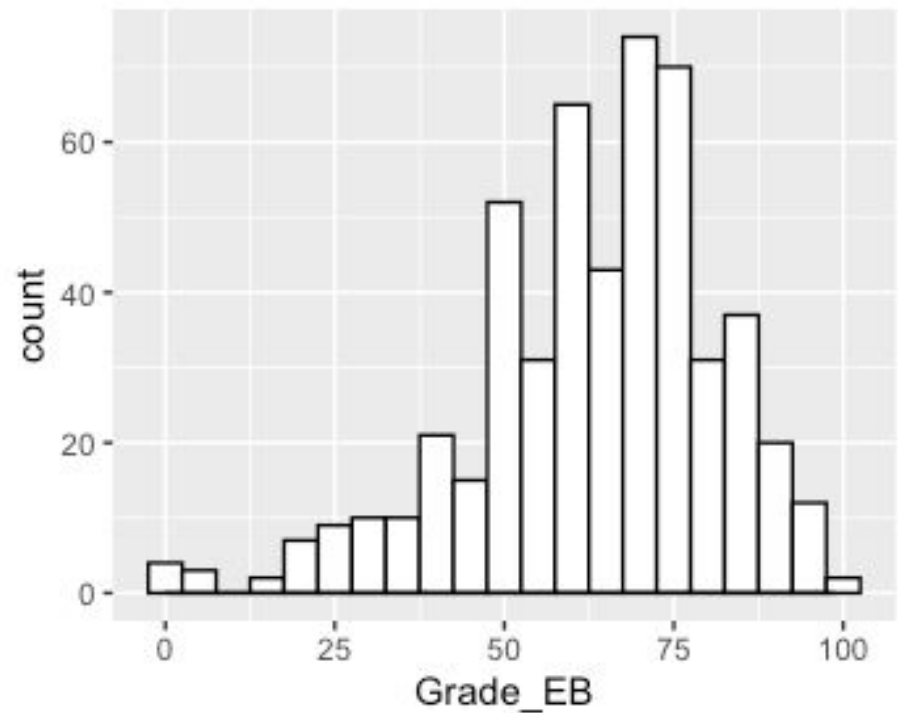
2020 Term B

EDA - score distribution

ES350 2020 Term B Grammar



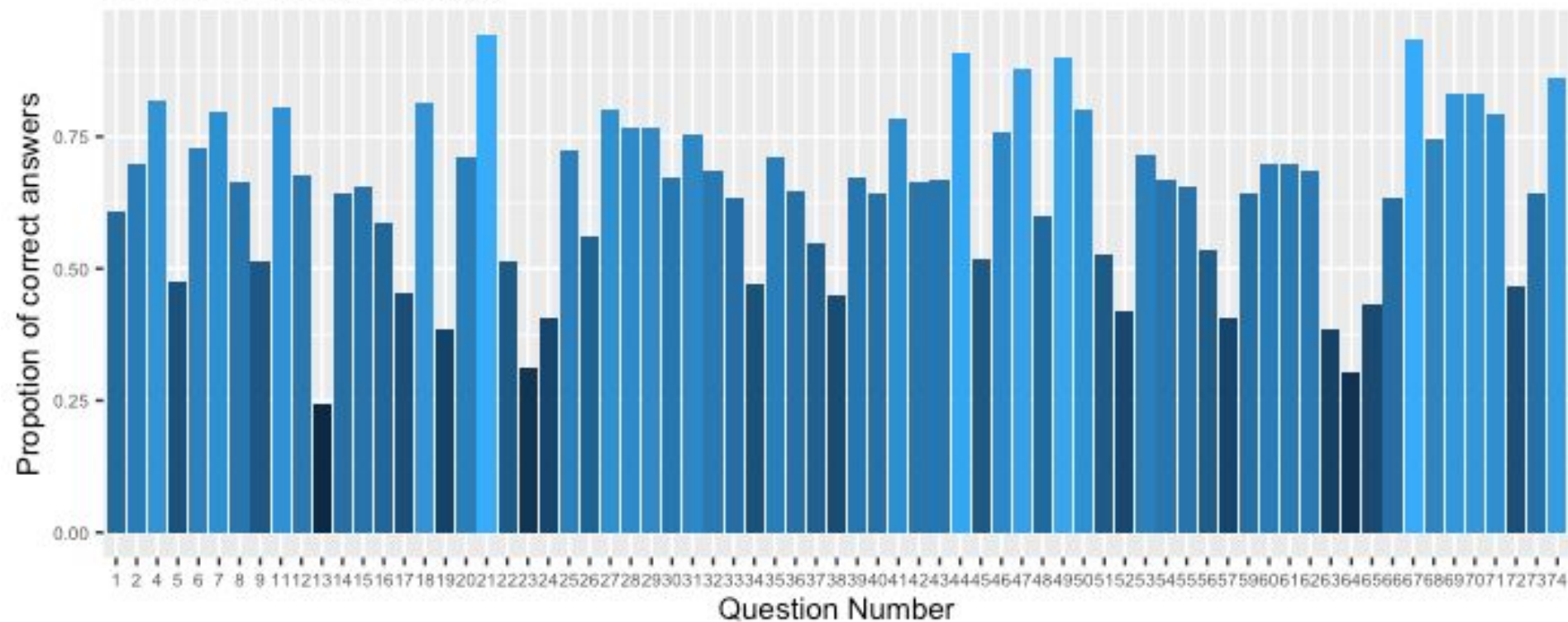
ES350 2020 Term B Grammar



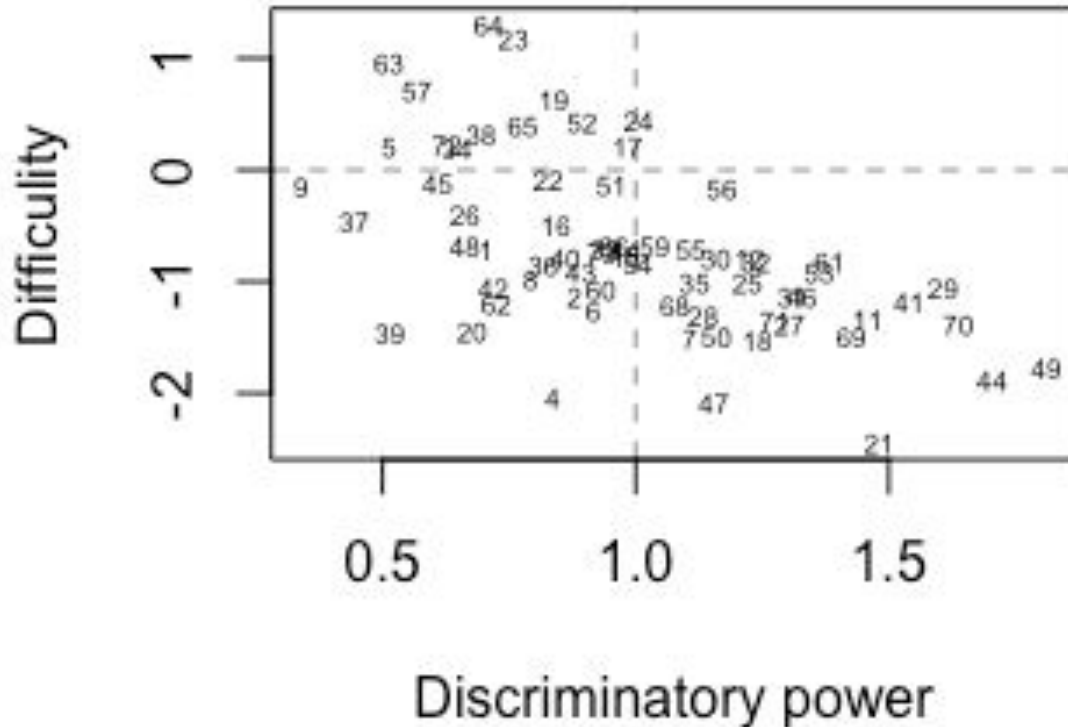
EDA - 正答率

Min: 0.2441
Median: 0.6667
Mean: 0.6474
Max: 0.9431

ES350 2020 Term B Grammar

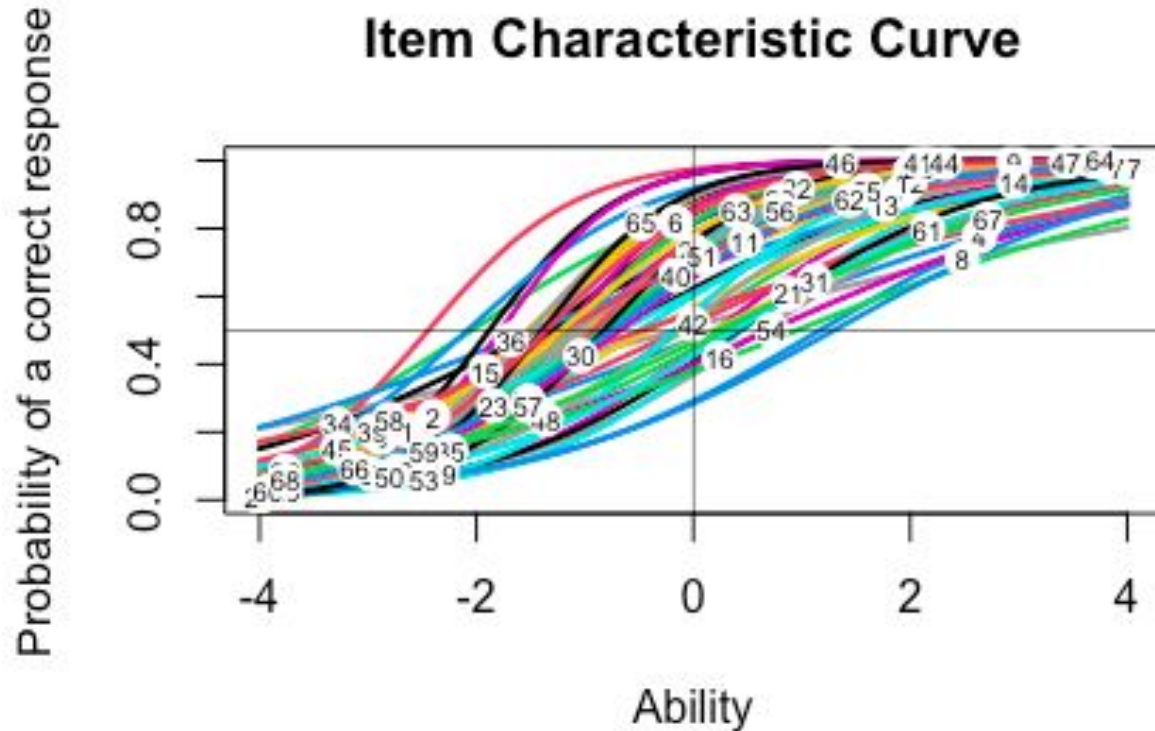


Discriminatory power - Difficulty plot (outliers removed)

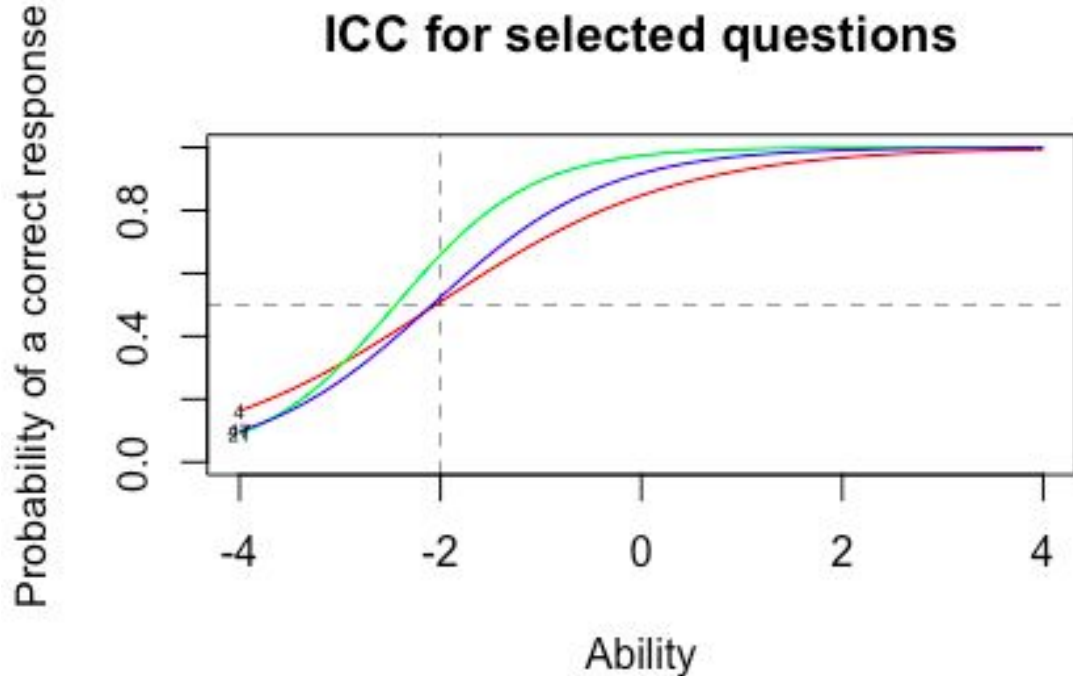


- Discriminatory power: mostly in range between 0.5-1.5, equally distributed
- Difficulty: in range between -2 -1, majority <0

Item Characteristic Curve - Overview

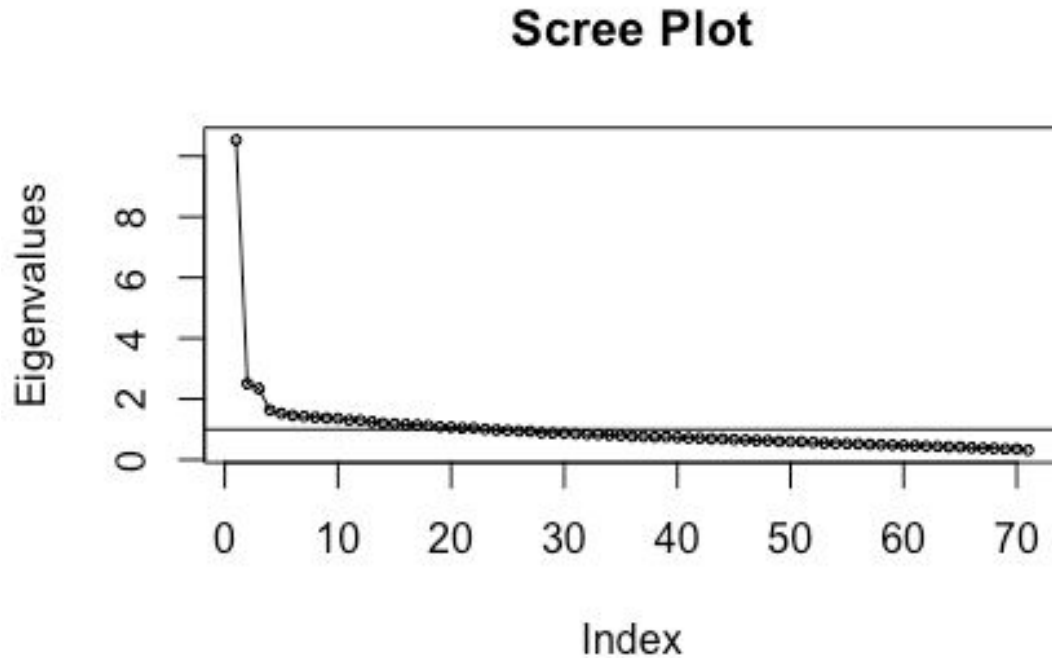


Item Characteristic Curve - Selected Questions



- Question 4, 21, 47
- Select the questions that more than half of the students with ability = -2 got correct
- These questions are “too easy”

Scree Plot

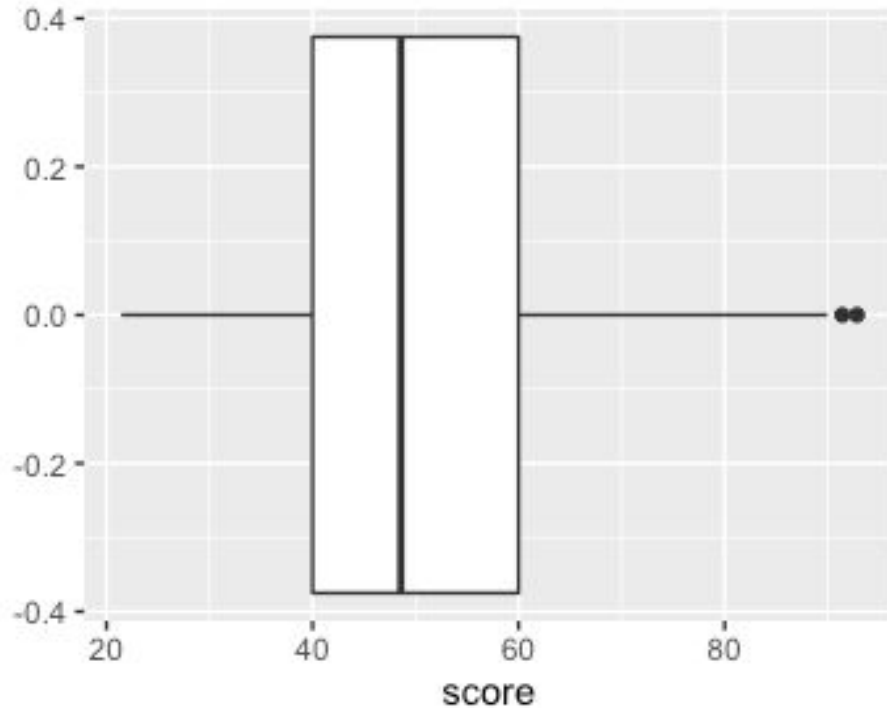


- Since 23 of the items have eigenvalues > 1 , we only need 23 items to verify unidimensionality

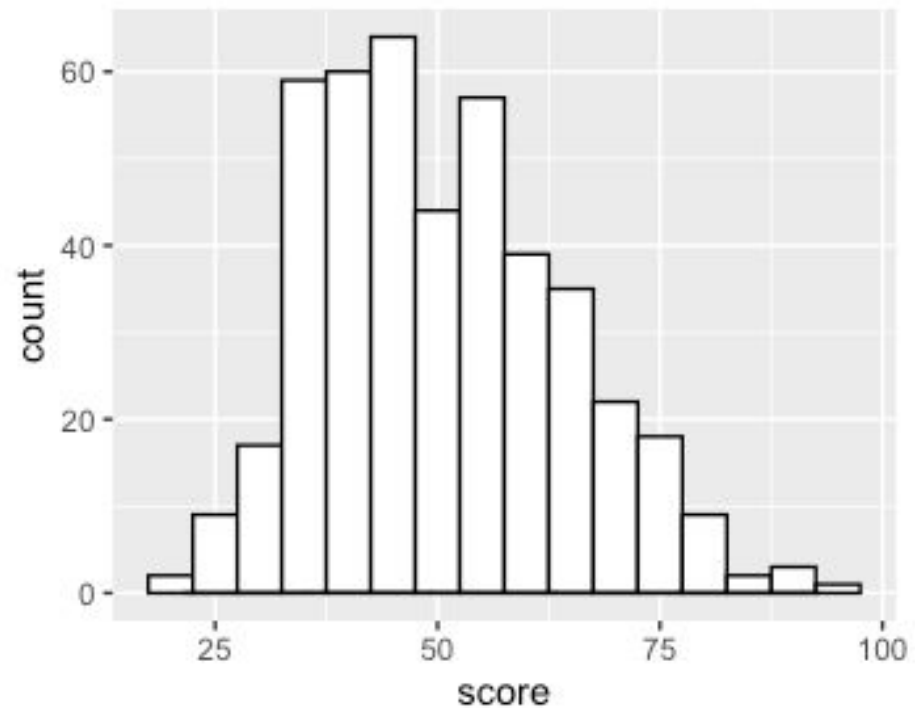
2019 Term B

EDA - score distribution

ES350 2019 Term B Grammar



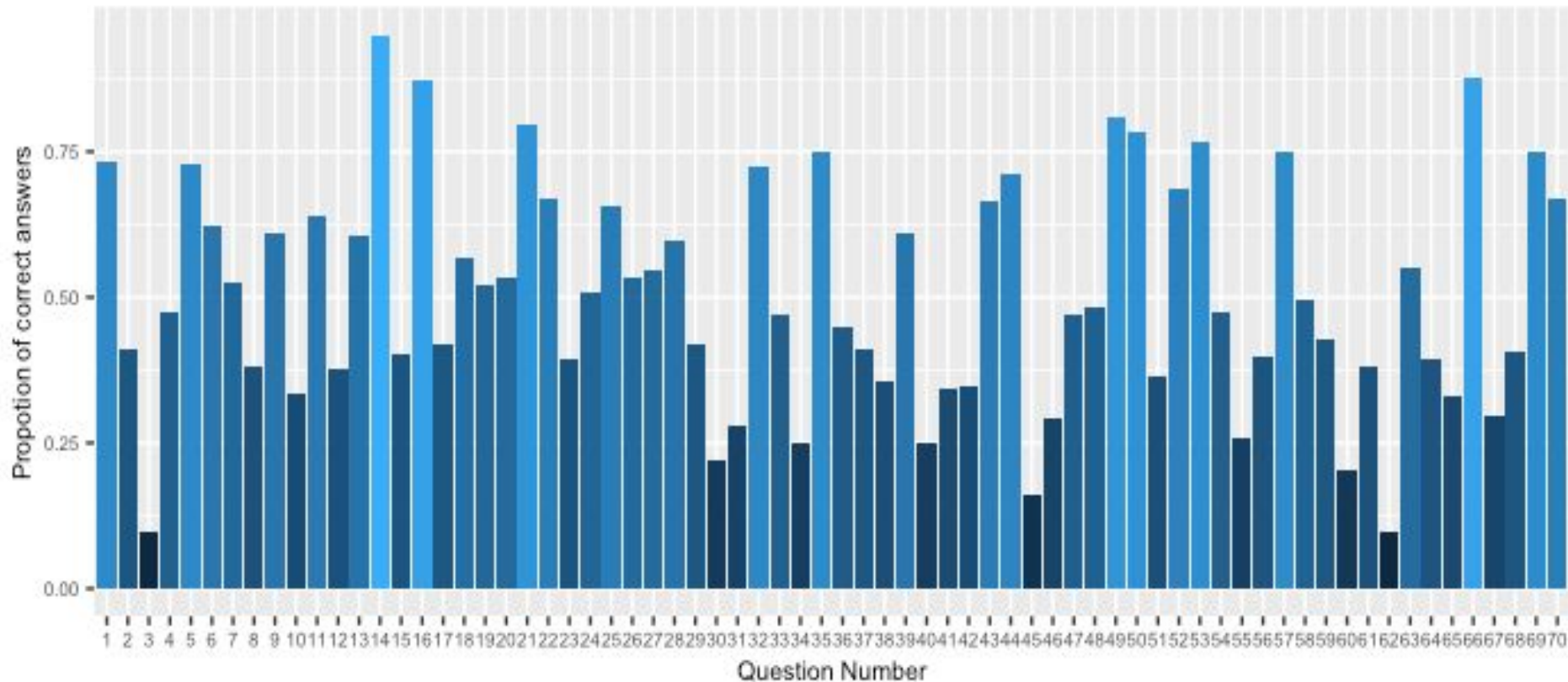
ES350 2019 Term B Grammar



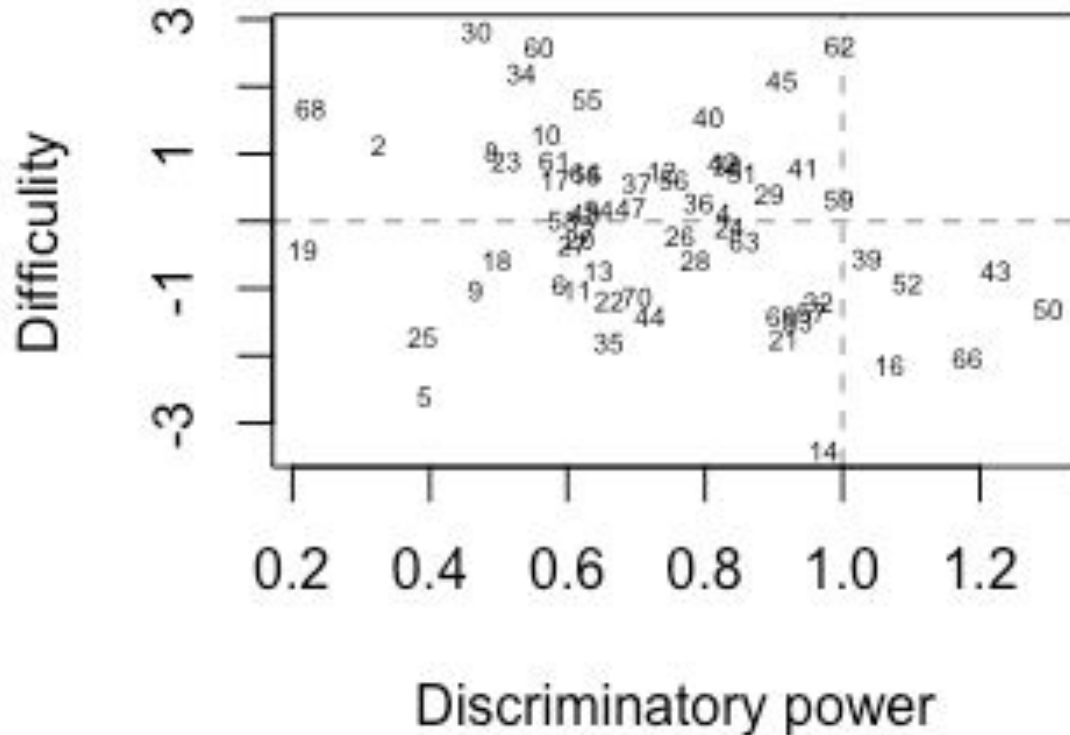
EDA - 正答率

Min: 0.09773
Median: 0.47726
Mean: 0.50469
Max: 0.95011

ES350 2019 Term B Grammar

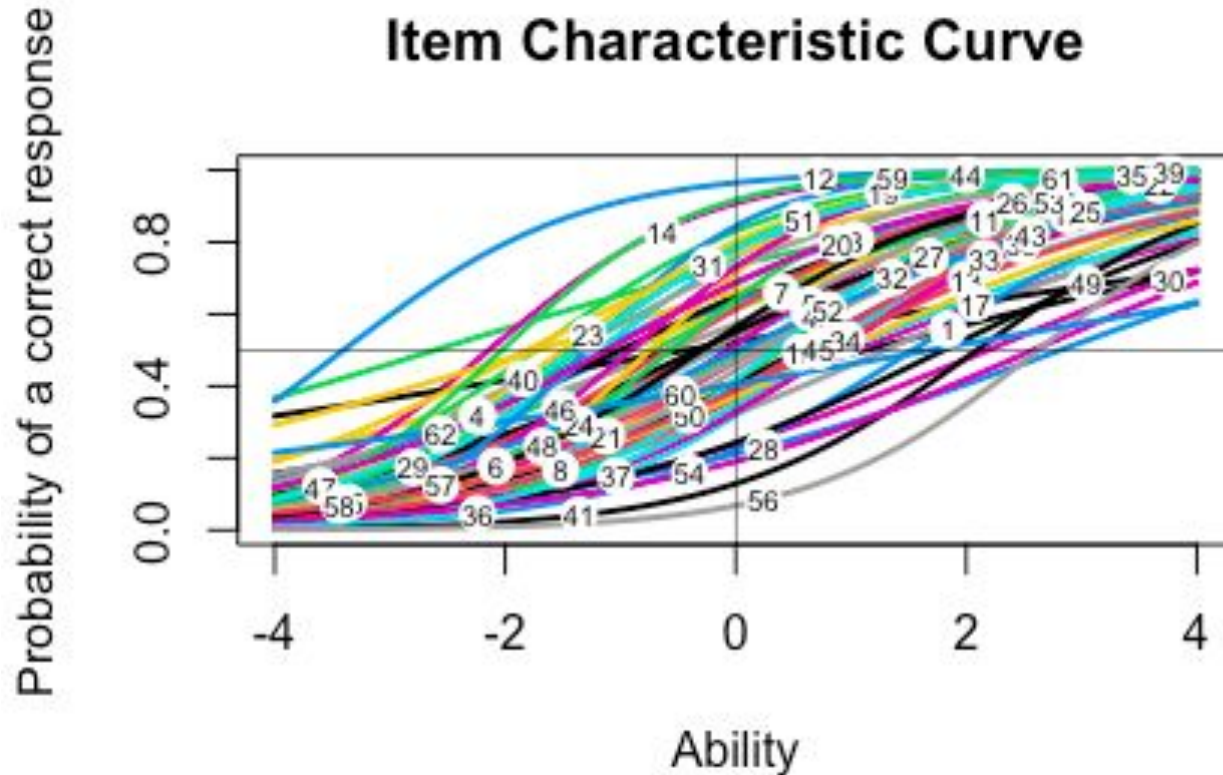


Discriminatory power - Difficulty plot (outliers removed)



- Discriminatory power: majority < 1.0, range too wide
- Difficulty: equal distribution, range too wide(-3 - 3)

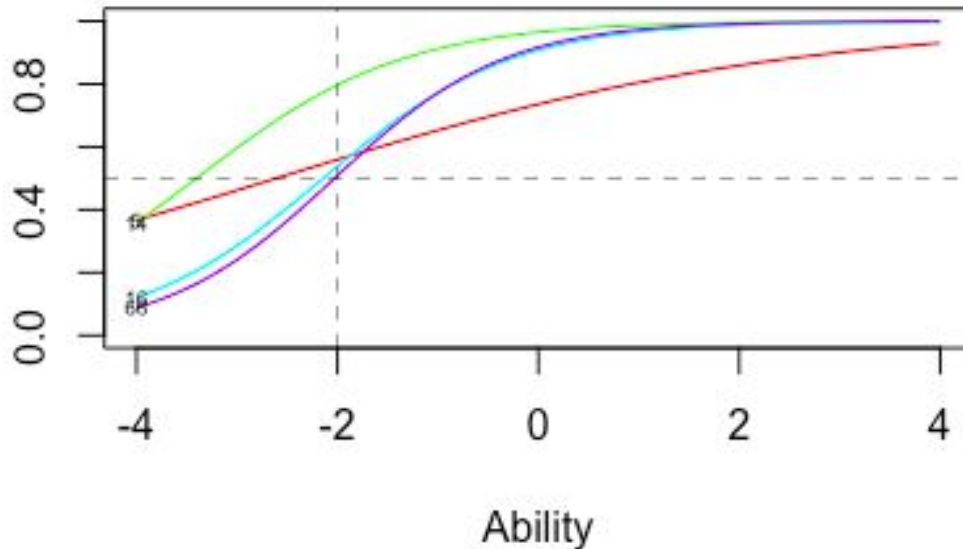
Item Characteristic Curve - Overview



Item Characteristic Curve - Selected Questions

Probability of a correct response

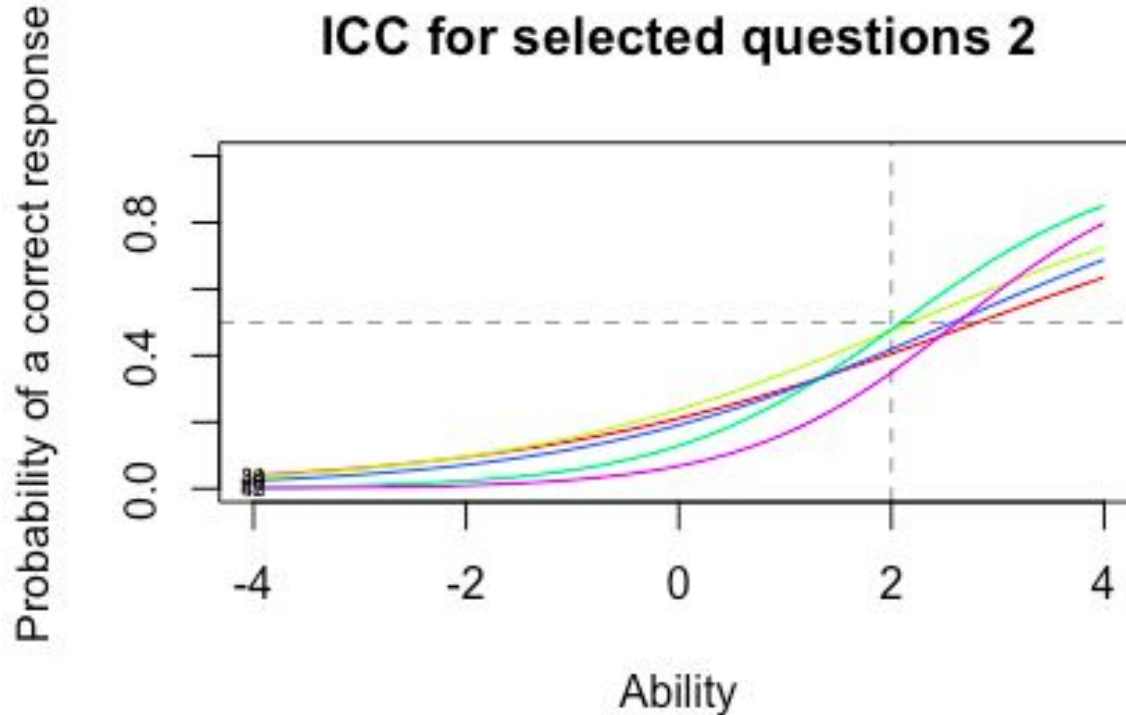
ICC for selected questions



- Question 5, 14, 16, 66
- Select the questions that more than half of the students with ability = -2 got correct
- These questions are “too easy”

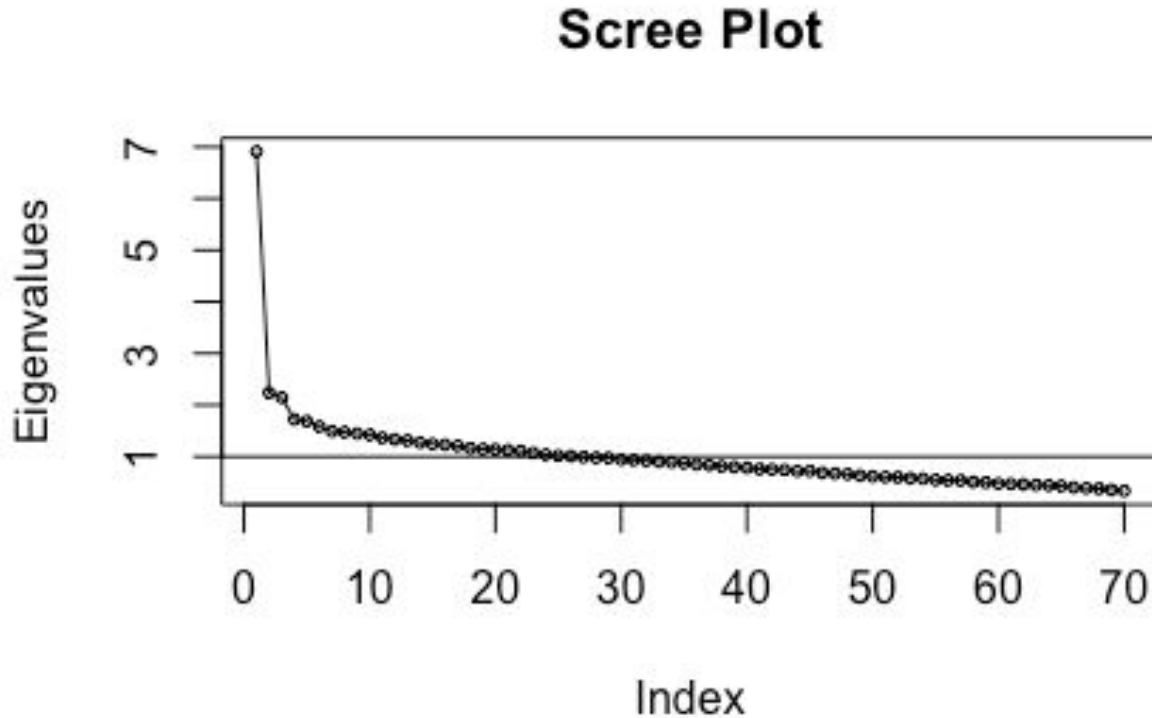
Item Characteristic Curve - Selected Questions 2

ICC for selected questions 2



- Question 30, 34, 45, 60, 62
- Select the questions that more than half of the students with ability = 2 got wrong
- These questions are “too difficult”

Scree Plot

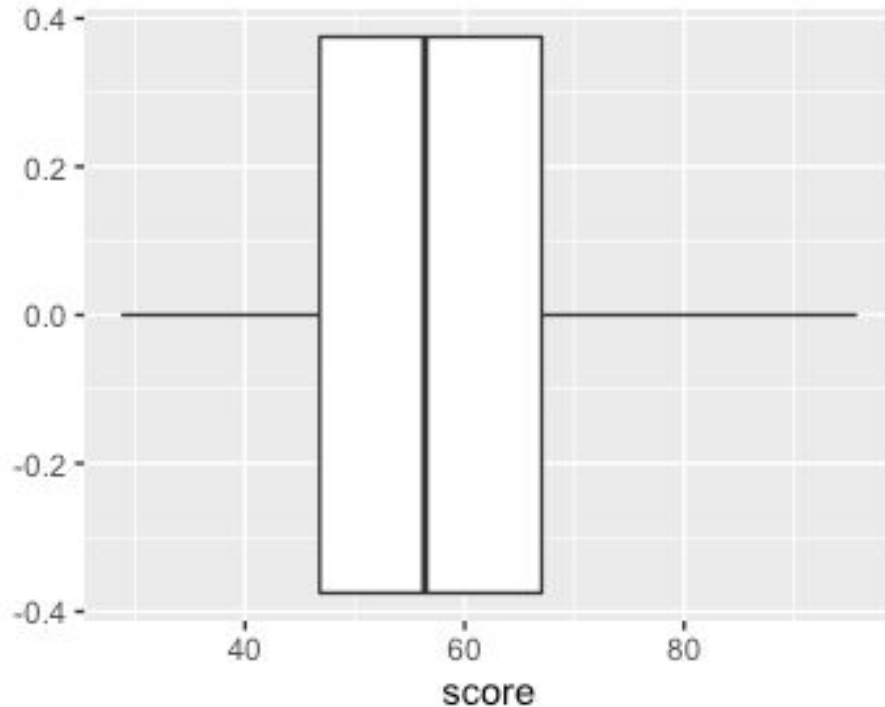


- Since 26 of the items have eigenvalues > 1 , we only need 26 items to verify unidimensionality

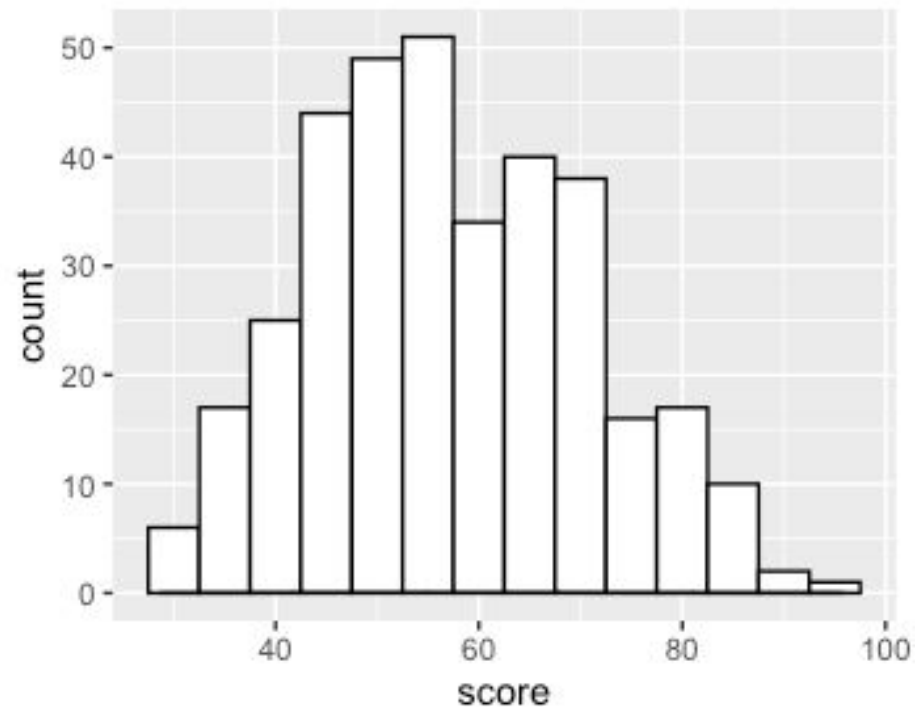
2018 Term B

EDA - score distribution

ES350 2018 Term B Grammar

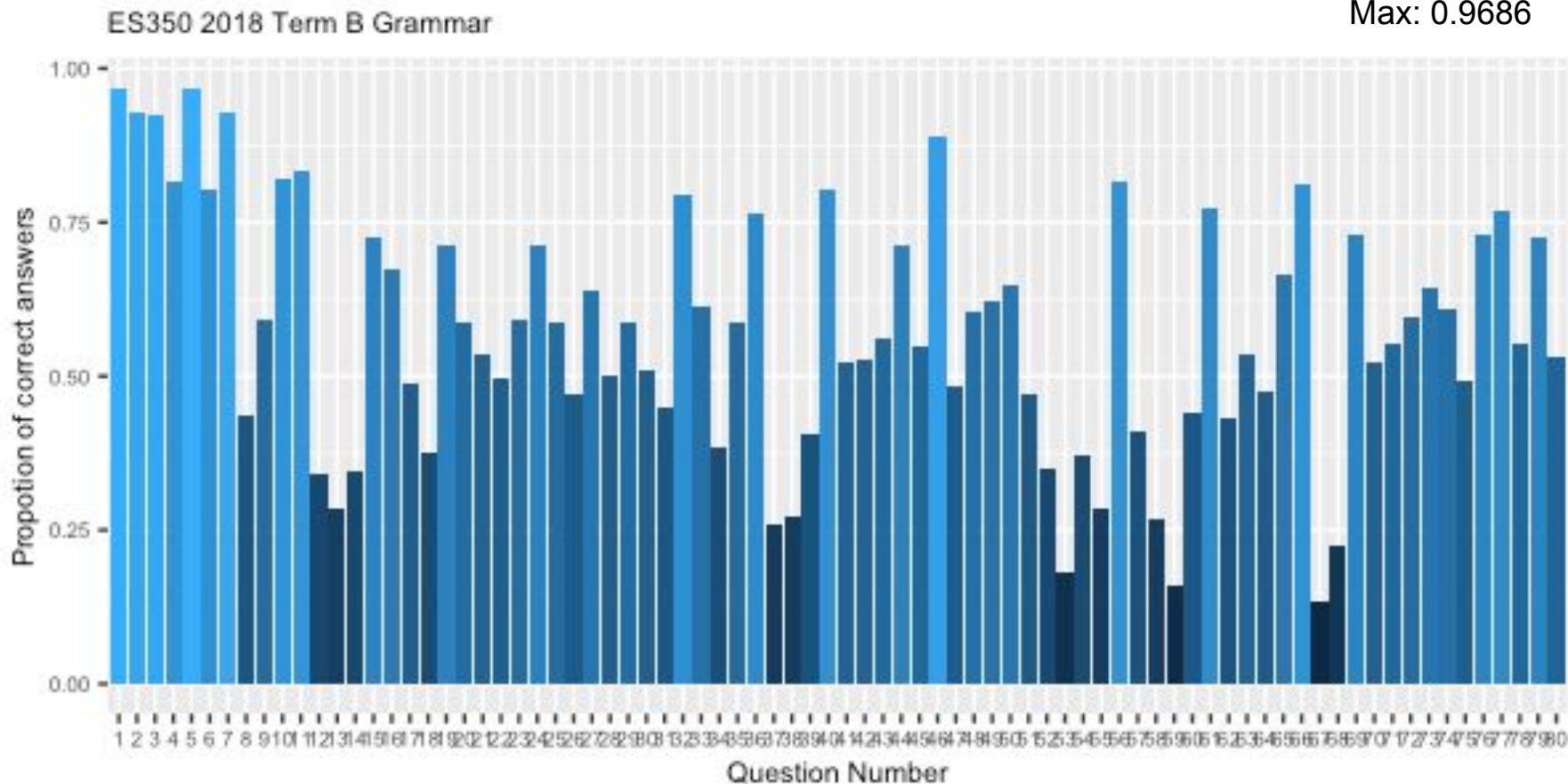


ES350 2018 Term B Grammar

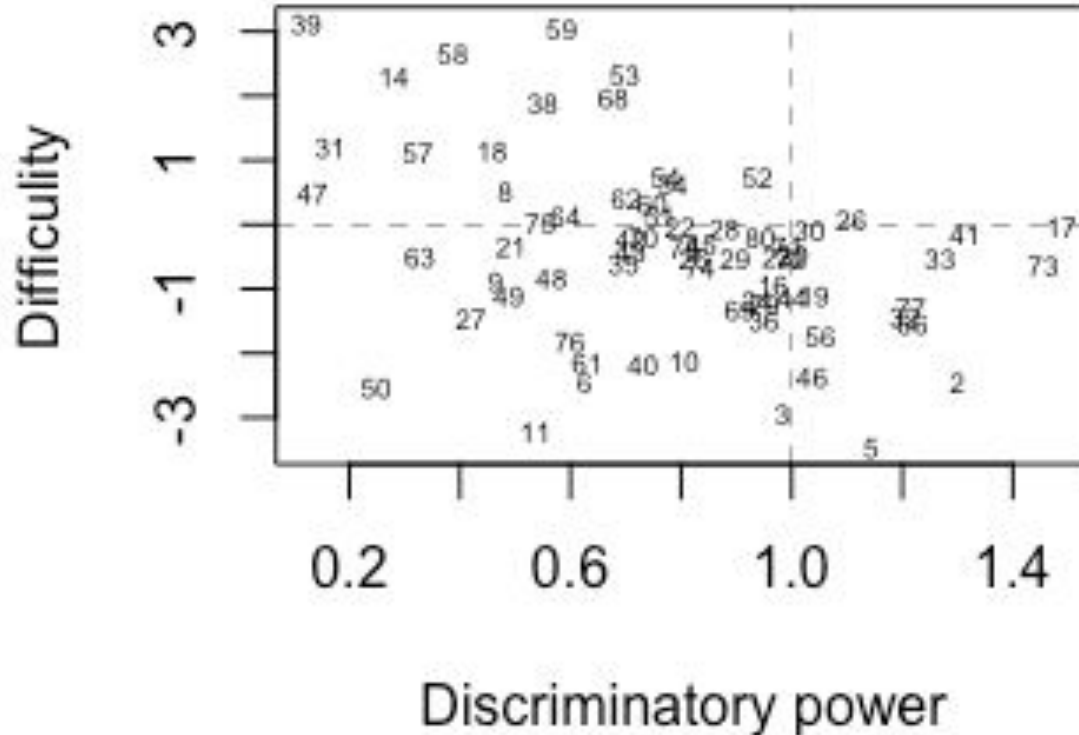


EDA - 正答率

Min: 0.1343
Median: 0.5731
Mean: 0.5738
Max: 0.9686

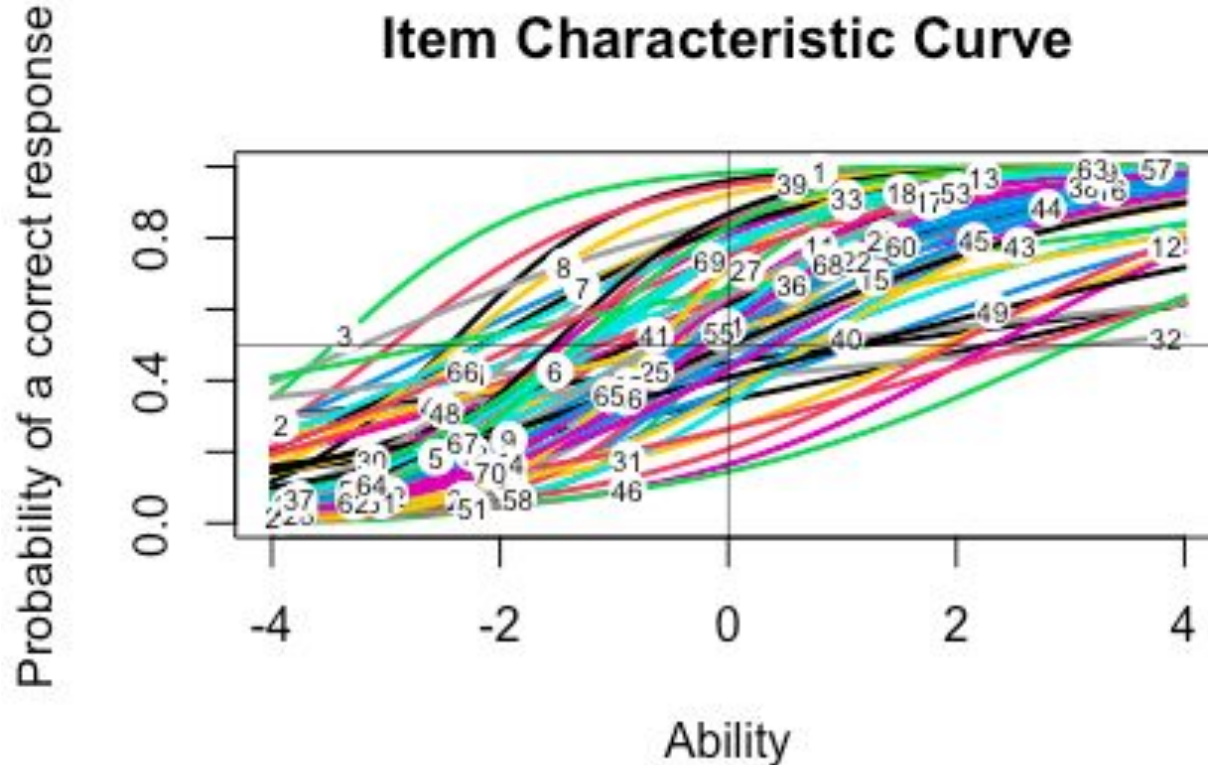


Discriminatory power - Difficulty plot (outliers removed)

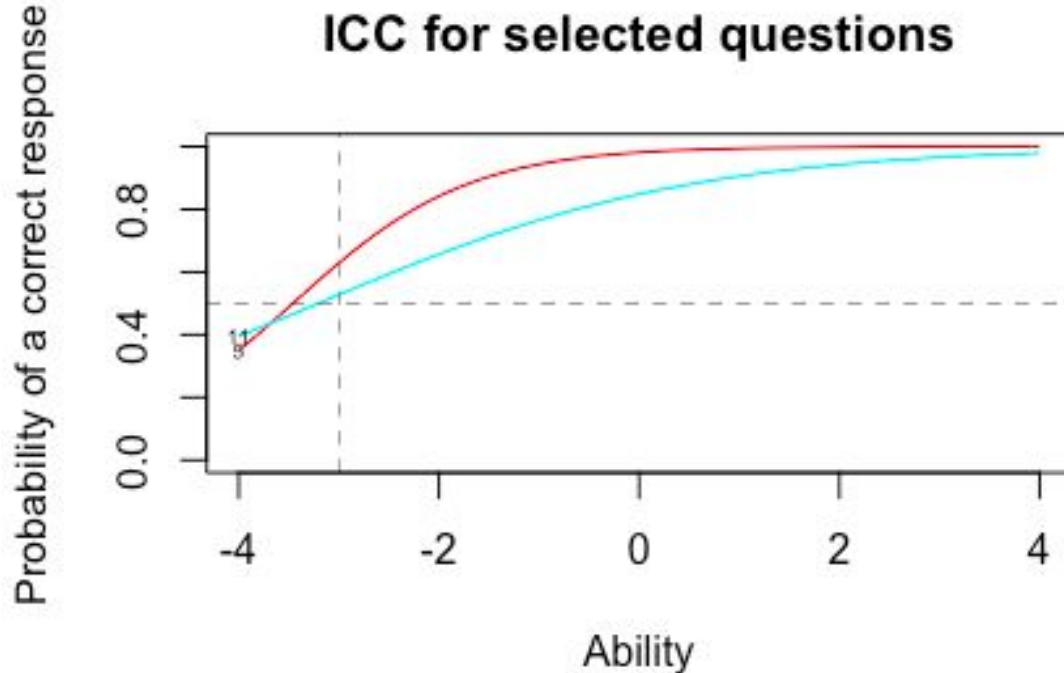


- Discriminatory power: majority < 1.0, clustering between 0.6 and 1.0
- Difficulty: clustering between -1 and 0, overall range too wide(-3 - 3)

Item Characteristic Curve - Overview



Item Characteristic Curve - Selected Questions

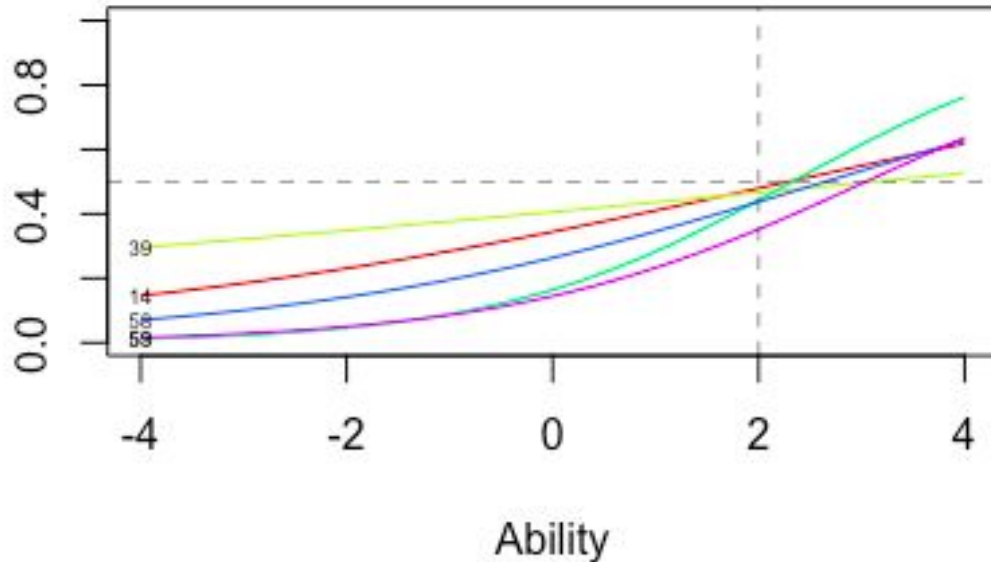


- Question 5, 11
- Select the questions that more than half of the students with ability = -3 got correct
- These questions are “too easy”

Item Characteristic Curve - Selected Questions 2

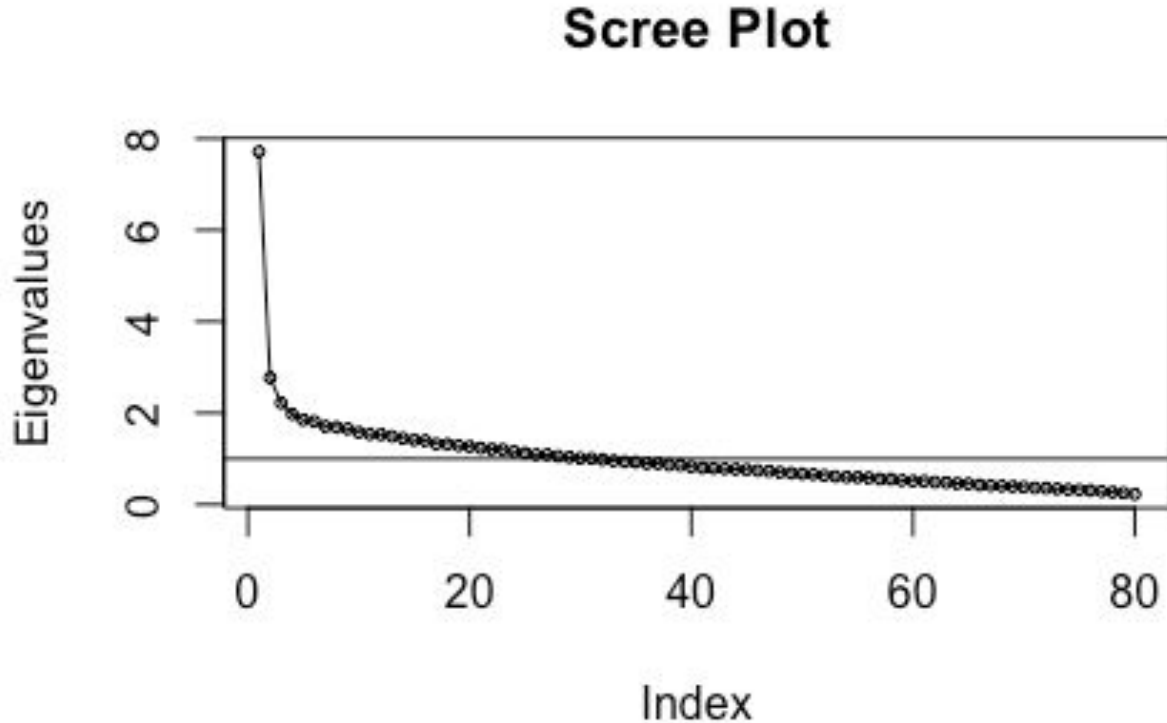
Probability of a correct response

ICC for selected questions 2



- Question 14, 39, 53, 58, 59
- Select the questions that more than half of the students with ability = 2 got wrong
- These questions are “too difficult”

Scree Plot



- Since 31 of the items have eigenvalues > 1 , we only need 31 items to verify unidimensionality

Summary

2018-2020 Term B

Total score (converted into 0-100 scale)

